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Submarine Integrated Control

OFFICE OF NAVAL RESEARCH

GENERAL DYNAMICS CORPORATION
ELECTRIC BOAT DIVISION
GROTON, CONNECTICUT

114155

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GENERAL DYNAMICS CORPORATION
Electric Boat Division
Groton, Connecticut

EXPERIMENTAL EVALUATION OF THE EFFECT OF OCEANOGRAPHIC PARAMETERS ON SUBMARINE SONAR PERFORMANCE(U)

USS PERMIT (SSN594) AND USS BLUEGILL (SS242)
PACIFIC OCEAN - JANUARY 1966

GROUP - 4
DOWNGRADED AT 3-YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS

by
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C417-067-008
February 27, 1967

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ABSTRACT

The results of measuring the effects of environmental variables on acoustic transmission in the ocean are summarized in this report. The environmental variables were measured both before and during a controlled-geometry submarine exercise, using sensors on a research vessel and an aircraft. The acoustic signals were obtained from the submarines. During the submarine exercises, the SUBIC DDP-24 computer was used to predict the best listening depths for each run, using the most recent sound velocity profile data measured from the submarine as the input to a ray-trace program. The interpretation of the acoustic signals in the context of the measured environmental variables is the major result of this report.

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FOREWORD

The work described in this report was performed by the Information Processing Section of the Applied Sciences Department, Electric Boat division of General Dynamics Corporation, as part of the Submarine Integrated Control Program (SUBIC). Electric Boat division is prime contractor and coordinator of this program under contract NOnr 2512(00). Lcdr. W. Billing, USN, is Project Officer for ONR. Dr. R. D. Collier, Senior Staff Scientist, is Project Coordinator for Electric Boat division under the direction of Dr. A. J. van Woerkom, Chief Scientist of the Applied Sciences Department.

The cooperation of Commander, Submarine Squadron Three, his staff and the ship's company of USS PERMIT (SSN594) is gratefully acknowledged.

I

INTRODUCTION AND SUMMARY

One of the primary objectives of the SUBIC Research Program is to develop techniques of applying knowledge of the physical ocean environment to the tactical deployment of attack submarines.

An initial approach is to develop display techniques which can be utilized by the submarine commanding officer in decision making. An important development of the recent past is an acoustic ray pattern display of the sound energy generated by a sound source (own ship or target), and the adaption of a high speed, real-time, compact digital computer with cathode ray tube display for implementation of shipboard ray pattern display.

The first use of this computer-display system at sea took place in February 1965 aboard the USS DACE (SSN607) and demonstrated the applicability of ray trace techniques for tactical decisions.

The second use of this system took place in July 1965 aboard the USS TINOSA (SSN606) and further extended ranging techniques.

The need for improved environmental models to provide more realistic inputs to the ray trace program and computations of transmission loss is recognized. For example, the space-time variations in the sound velocity vs. depth profile can introduce significant changes in the ray paths and sound intensities for given depth/range combinations.

The third at-sea test, in January 1966, was designed to measure the environmental variables and their direct effect upon sound propagation. These propagation studies were conducted by the USS PERMIT in conjunction with the USS BLUEGILL (SS242) off the United States West Coast, at which time R/V SEA SERPENT obtained time series measurements of oceanographic parameters. This report describes the results of that experiment.

As planned, the exercise resulted in two sets of data: the signal data from the submarines and the environmental data from the research vessel. The interpretation of the former in the context of the latter was the principal objective of the exercise. How this was done by utilizing the simulation capability of the SUBIC Ray Trace Program constitutes the major result to be reported.

Briefly, an order of magnitude difference in the variance of the received acoustic signal was recorded at ranges of 5, 000 and 10, 000 yards (Section III). Furthermore, the variance was smaller at the longer range, discounting volume and surface reverberation as possible explanations. A difference in variance of comparable magnitude was apparent in both passive and active runs, eliminating phase effects of multiple transmission, or other frequency effects, as possible explanations. An explanation was found, however, in the environmental data.

The measurement of the thermal structure of the upper 500 feet of the ocean, taken from the surface ship in the general locale of the submarine exercise, revealed a large scale fluctuation in the depth of the surface sound channel with range (Section II). The cause of this fluctuation is explained by the overall view of the surface temperature distribution obtained by aircraft infrared thermometer runs.

The ray trace program was recently expanded to include a model of internal waves (Section III). With the proper interpretation, this model was used to simulate the measured variations in the surface channel depth. This simulation resulted in a confirmation of the signal data: that the 5, 000-yard data was taken in a region where, because of the particular conditions observed, the variable surface channel would cause considerable fluctuation in the signal with time, while the 10, 000-yard data was in a region where, fortuitously for the comparison, the signal strength was practically undisturbed by the varying depth of the channel.

The result is not entirely conclusive. No quantitative comparison is possible from the existing data and a good description of the channel depth was not obtained. Nonetheless, an otherwise unexplainable observation of signal variability, and an observation of such contrast as to be undeniable, is qualitatively explained by the observation of large scale fluctuations in the medium.

Also included (Section IV) are the autocorrelation functions of the signal about its mean. A time scale of the magnitude of a few minutes is indicated for signal coherency and this too can be explained on the basis of the submarines cutting through spatially periodic variations in channel depth of a magnitude commensurate with what was observed.

In summary, although a detailed survey of the area was made at the time of the test, it was far from sufficient to provide all of the data necessary for an absolute calibration of the propagation model. It did, however, show that inhomogeneities did exist in the sound velocity structure and that these were of sufficient magnitude to cause variances in the sonar signal received. In addition, it was determined that the SUBIC at-sea ray trace was applicable to active as well as passive signals in predicting average transmission loss, and that an internal

wave ray trace model programmed on a laboratory computer was able to roughly predict the variance in both the active and passive signals.

The D/E angle was monitored for the first time during a SUBIC at-sea test. The results indicated that the vertical beamwidth is too wide to accurately track a target in the surface channel, thus severely handicapping passive ranging based upon the D/E angle. However, there are indications that a new method of passive ranging based upon the variance in S/N may be developed.

II

OPERATION AREA ENVIRONMENTAL DATA

The main purpose of the presence of the R/V SEA SERPENT and the aircraft during the PERMIT - BLUEGILL tests was to sample the environment in such a way that the variability in S/N and transmission loss as measured by the submarines could be correlated with fluctuations in the oceanographic parameters. In this way, data would be provided for improvement in environmental models used as input to the ray trace program. Although the environmental data collection results were limited, the path for future investigation was indicated.

The surface ship and aircraft sampling programs were designed to provide maximum possible background data on the local oceanographic conditions and to provide detailed data on the variability in the acoustic field during the submarine tests. The surface ship program consisted of tests to determine spatial, temporal and directional characteristics of temperature and sound velocity changes in the test area. In general terms, the surface ship program during the tests was to sample continually on a square track, the dimensions of which corresponded to typical transmission ranges. Each leg of the box was made up of thermistor chain tows, whereas the vertices of the box were stationary thermistor chain recordings and sound velocity profiles. The instrument suite consisted of a thermistor chain, velocimeter and bathythermograph. The aircraft program consisted of gathering data on the gross water mass distribution by using a Barnes IT-2S infrared thermometer to record the distribution and fluctuations in sea surface isotherms. These flights were to take place over the three-day period of the submarine tests and were to cover a 30- by 60-mile area.

The general oceanography of the region has been well established. Water of subarctic origin moves south down the coast of California, becoming modified by atmospheric conditions and entrainment of nearshore coastal water. This southbound current, the California Current, is an extension of the Aleutian Current and extends from about 48°N to 23°N where it converges with equatorial water. During the winter, from November through January, a countercurrent or eddy is well developed inshore of the California Current. This circulation tends to carry relatively warm saline water northward and has been named the Davidson Current. Beneath the southbound, meandering California Current is a northbound current of equatorial origin.

It was expected that January tracklines running west from the coast at 34°N would pass from the region dominated by northbound water into the southbound water where acoustic conditions were good. Additionally, the track would pass through a frontal region which might be ill-defined by slow-moving meanders and eddies

in the circulation. This mixing region could be delineated by a plot of the sea surface isotherms. The movement of these disturbances could be tracked by successive sampling of the surface isotherms. These were the factors that augured for the use of aerial sea surface temperature survey techniques.

Since it was known that equatorial water was both inshore of and beneath the California Current, the boundary between the two water masses must leave the surface and increase in depth as one headed west from the coast. This implies a general negative slope or increase in depth in the mixing layer as one proceeds out into the southbound water. In addition to the perturbations in the acoustic field introduced by the vertical structure of the meanders and eddies in the circulation, temporal and spatial changes were expected from other causes. In the subsurface boundary region between the north and southbound water masses, internal waves (Helmholtz) can exist. Also, internal waves propagating onshore from distant generating areas can be expected. More important, due to the proximity of the test area to the continental slope, internal waves generated by tidal forces over the slope can be expected. It is interesting to consider that the propagation directions of some of these waves would be normal to each other, implying a spiked field analogous to crossing seas.

One of the functions of the surface ship was to delineate the test area. The requirement was to find an acoustically reliable area for the experiment that the submarines could reach and return from, as well as complete the tests, within the allotted time. Additionally, the area was to be within surface ship range. In general terms, it was a problem of determining the location of the intersection of four sets of conditions: operating conditions on two submarines and one surface ship, and sonar conditions in the environment. Bathythermographs on file at the National Oceanographic Data Center were reviewed and it was concluded that the area approximately 100 miles due west of Point Arguello was optimal to search for the exact test site. It had been planned to locate the exact test site, radio in the coordinates, proceed with equipment checkout, and then initiate the intensive environmental survey. B.T.'s # 103 through # 112 are the results of the test site location program (see Figure 2-1).

B.T. # 103 is located southeast of Rodriguez Dome in 750 fathoms of water. When compared with the rest of the run, and especially B.T. # 104 on the other side of Rodriguez Dome, it may be indicative of upwelling caused by strong (NNE, 22 kts) offshore winds.

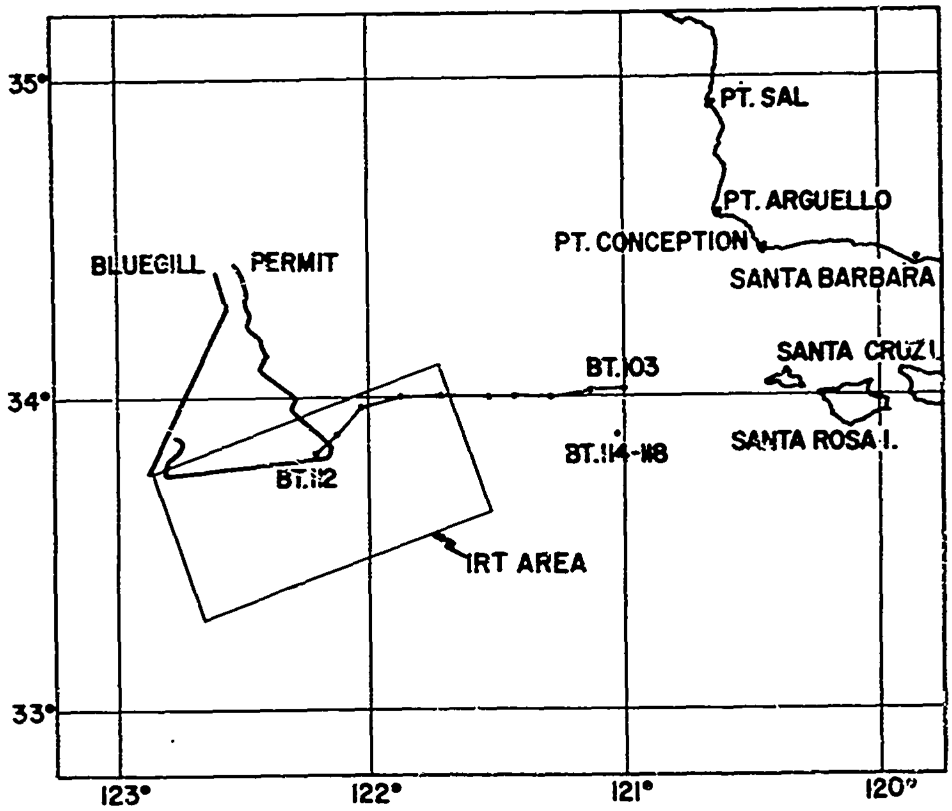


Figure 2-1 Location of Experiment

B. T.'s # 104 through # 108 show a surface layer 150 to 200 feet thick and at least 1^{o}F warmer than the layer to the east (B. T. # 103) or to the west (B. T. # 110 through 112). This may be indicative of a warm tongue of northbound equatorial water (Figure 2-2).

B. T. # 109 shows a slightly negative gradient in the surface layer. This is indicative of a frontal or transition region, and, when compared to B. T.'s # 104 through # 108 and # 110 through # 112, can be construed to be in the transition region between northbound and southbound water. (See infrared thermometer survey discussion for further analysis of this region.)

B. T.'s # 110 through # 112 show a surface layer of colder water 190 to 230 feet thick. It was assumed that the southbound water mass exhibiting good sonar characteristics had been reached, and test site coordinates were radioed in to San Diego at the completion of B. T. # 112.

A plot of layer depth, as read from B. T. # 104 through # 112, versus distance, measured from the location of B. T. # 104 (Figure 2-3), can be fitted with the following linear regression line:

$$z = 159 + 0.82\,x$$

where: z = layer depth in feet
x = distance in nautical miles from 34° 01'N, 121° 08'W (location of B. T. # 104) in a westerly direction

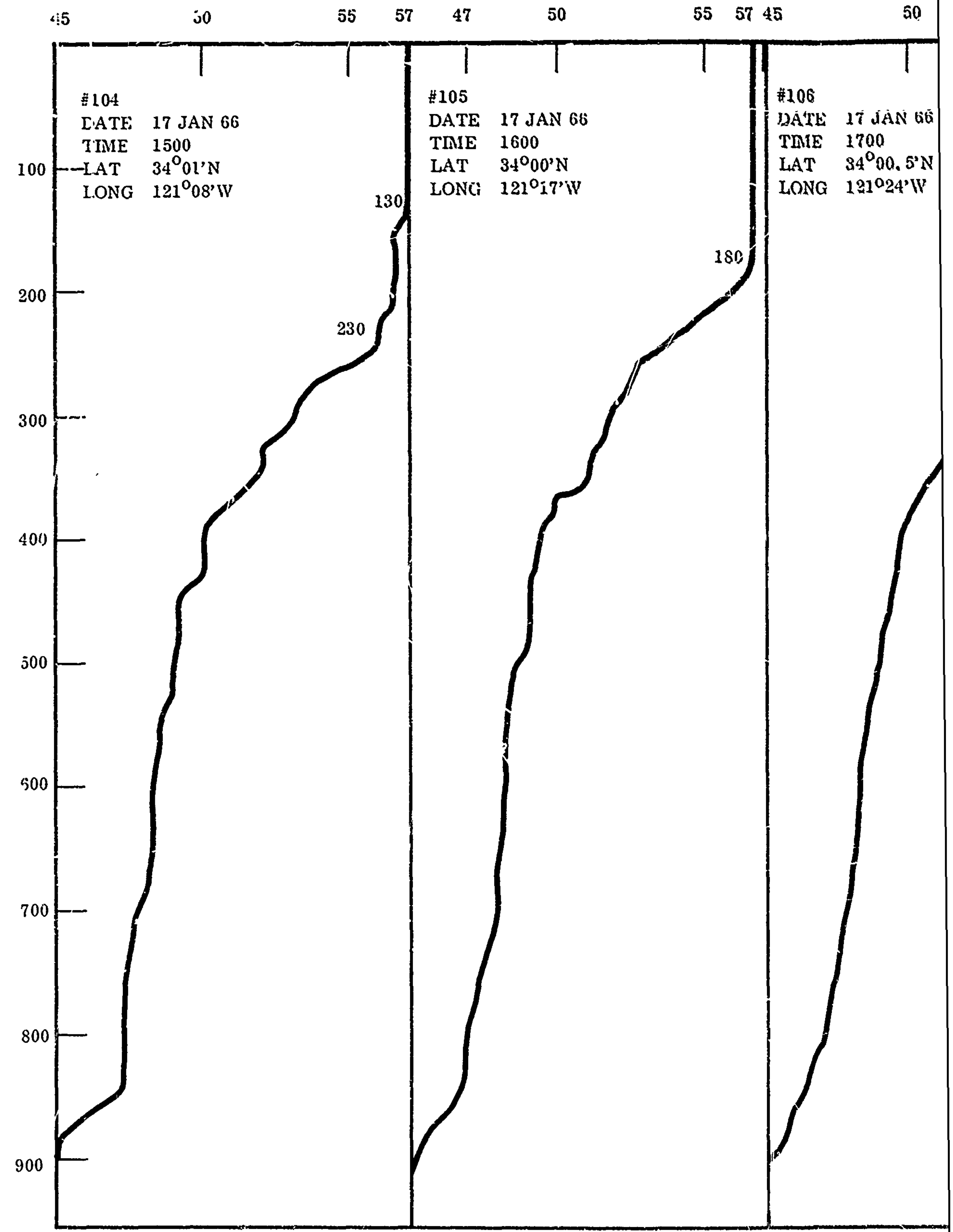
This indicates a general increase in layer depth proceeding west from the continental shelf break. Superimposed on the sloping linear regression line, representing the mean layer depth, is an apparent trigonometric variation of layer depth. This variation appears to be a cosine wave with a slight phase shift, as zero phase would be a few miles east of the location of B. T. # 104. The height of this wave is 50 feet and its length 36 miles (58 km). More detailed analysis of this waveform indicates that it does not represent internal waves, but rather is a result of the water mass circulation and upwelling due to wind. Specifically, the rise in the mixed layer toward an apparent crest when approaching the location of B. T. # 104 from the west appears to be due to northerly winds and the concomitant wind drift upwelling. Additionally, the rise in the mixed layer towards a crest in the vicinity of B. T. # 108 appears due to sampling in the transition zone or front between the warmer and cooler water referred to before. So it may be said that the waveform of the mixed layer depth versus distance plot is an apparent wave and has little to do with internal waves.

In Figure 2-3, it appears that the thermocline can be adequately described by the bundle of isotherms contained within the 53° to 55°F range, so that the 55°F isotherm was assumed to be representative. It is of interest to note that Emery and Summers[1] chose the 55°F isotherm as the thermocline indicator in their work of March and August 1961. They noted variations of up to 90 feet in isotherm depth. The plot of 55°F isotherm depth versus distance can be fitted with the following linear regression line (Figure 2-3):

$$z = 242 - 0.49\,x$$

where: z = 55°F isotherm depth in feet (thermocline)
x = distance in nautical miles from 34° 01'N, 121° 08'W is a westerly direction

This indicates a gradual decrease in the depth of the thermocline as opposed to the increase in the depth of the mixed layer over this same interval. Superimposed on this sloping linear regression line, representing the mean depth of the



45
50
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57
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#104
DATE 17 JAN 66
TIME 1500
LAT 34°01'N
LONG 121°08'W
130
230
#105
DATE 17 JAN 66
TIME 1600
LAT 34°00'N
LONG 121°17'W
180
#106
DATE 17 JAN 66
TIME 1700
LAT 34°00.5'N
LONG 121°24'W
100
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600
700
800
900

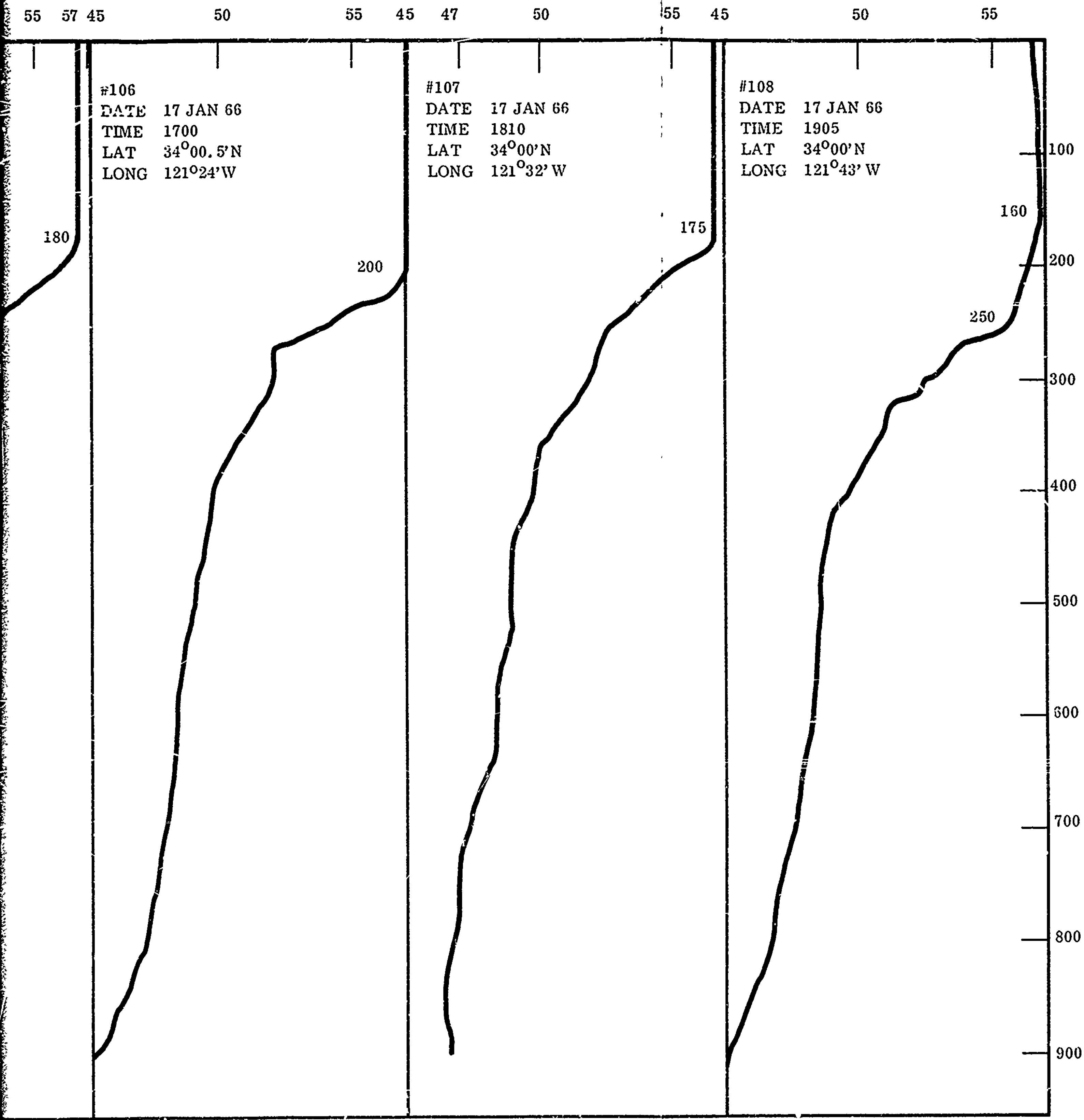
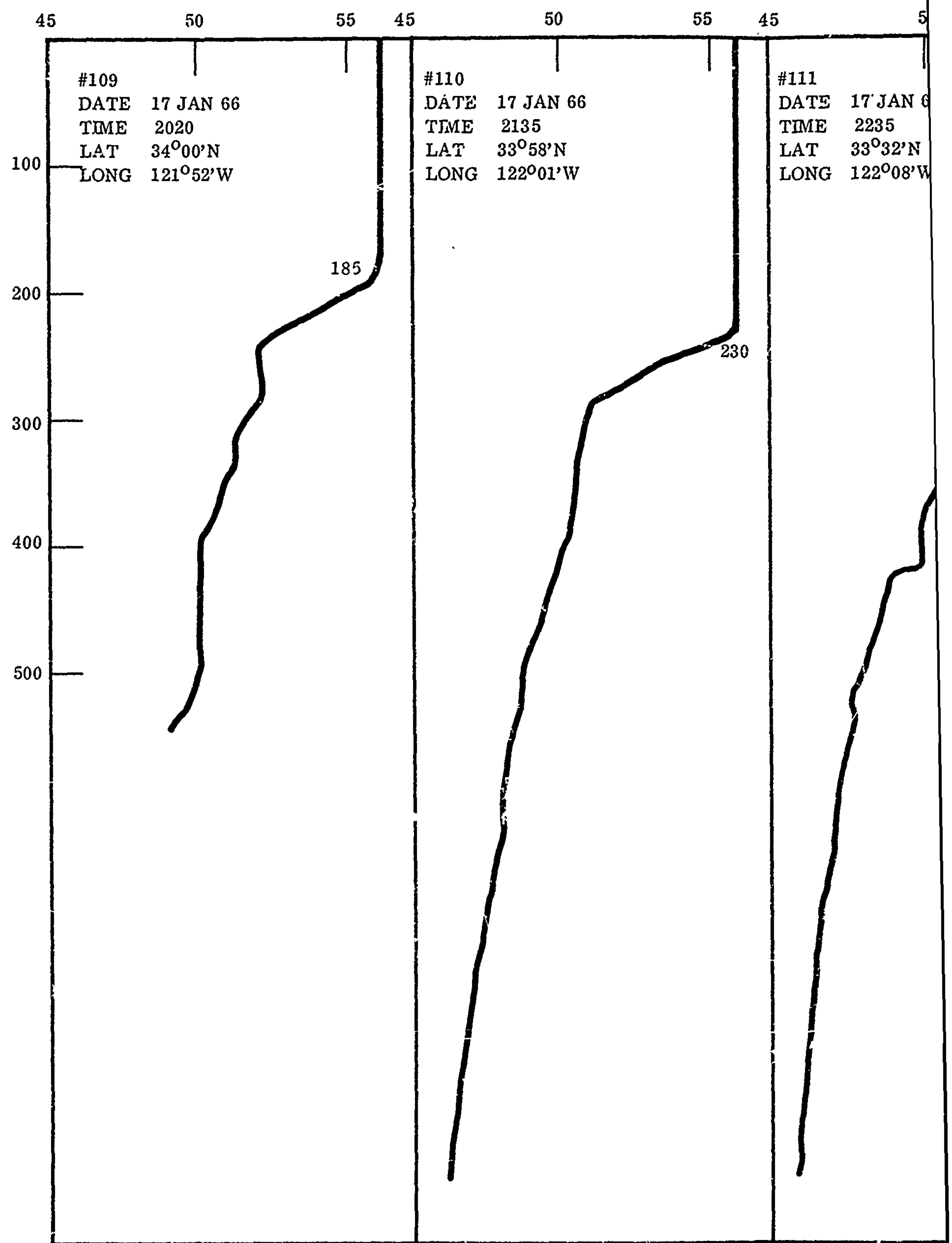


Figure 2-2a B.T.'s #104 through #108

2



45
50
55
45
50
55
45
5
#109
DATE 17 JAN 66
TIME 2020
LAT 34°00'N
LONG 121°52'W
#110
DATE 17 JAN 66
TIME 2135
LAT 33°58'N
LONG 122°01'W
#111
DATE 17 JAN 6
TIME 2235
LAT 33°32'N
LONG 122°08'W
100
185
200
230
300
400
500

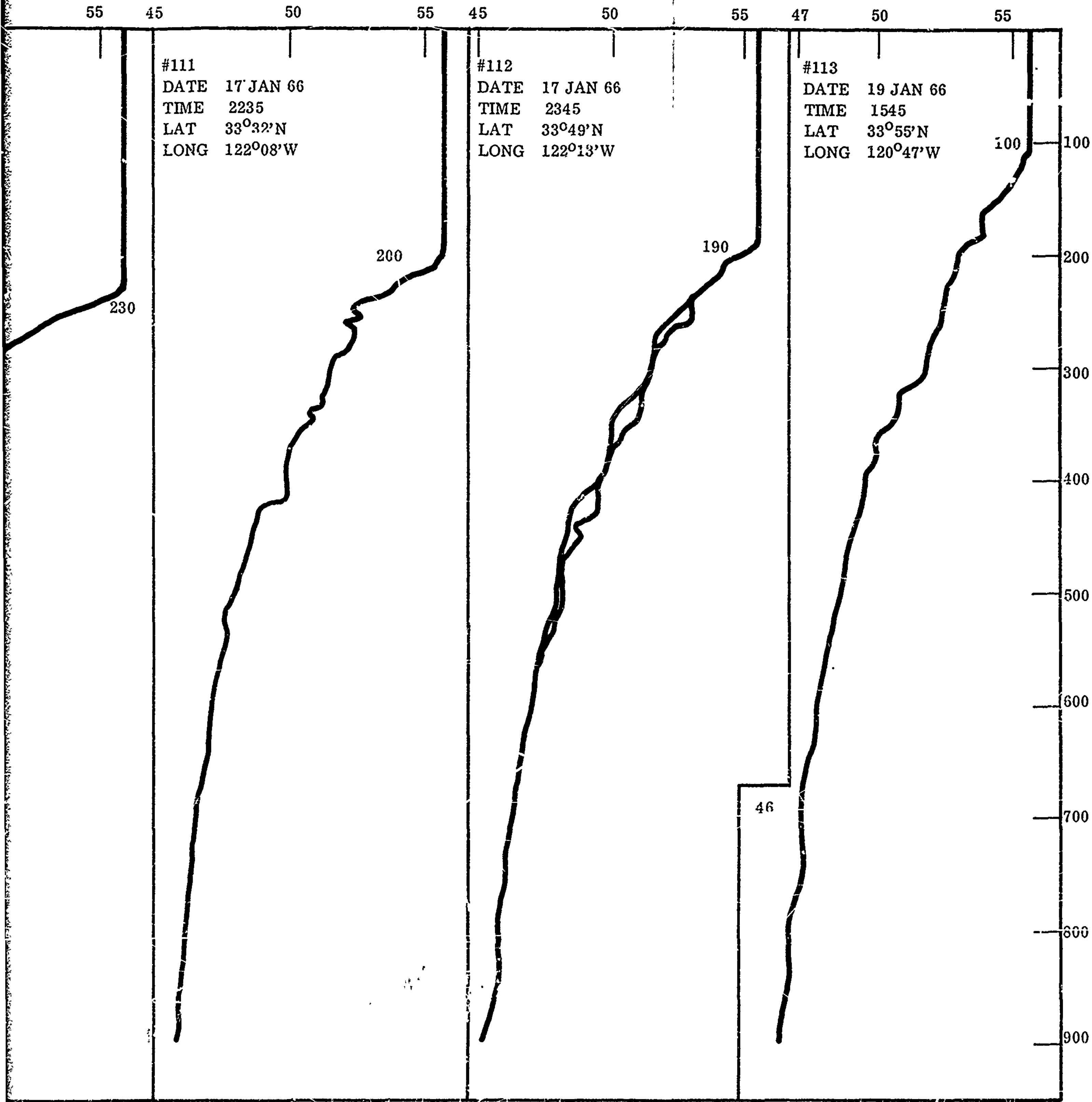


Figure 2-2b B.T.'s #109 through #113

thermocline, is a different apparent periodic variation of the thermocline depth. This variation appears to be a phase-shifted cosine wave or possibly a sum of cosine waves. The wave height is of the same order as the apparent mixed layer wave height, namely about [illegible].

The wavelength is deemed to be spurious in any application to internal waves as it is probably forced by the sampling interval in the B.T. run. The variations in depth of this isotherm are, however, taken to be real. It should be noted that only B.T. # 104 and # 108 cause the discrepancy between apparent wavelengths of the mixed layer and thermocline.

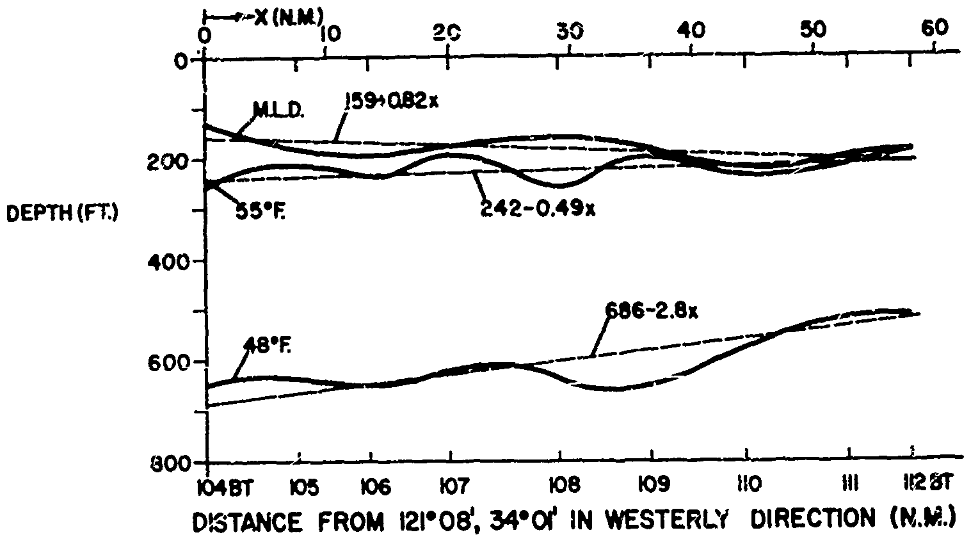


Figure 2-3 Thermal Structure

The 48^oF isotherm depth has been plotted in Figure 2-3 and can be compared to the 55^oF isotherm. The following linear regression line describes the mean depth of the 48^oF isotherm:

$$z = 686 + 2.8x$$

where: $z = 48^oF$ isotherm depth in feet
x = distance in nautical miles from 34^o 01'N, 121^o 08'W (B.T. # 104) in a westerly direction

This indicates a decrease in the mean depth of the isotherm proceeding west in the sampling area. It is noted also that this slope is five times as great as the 55^oF isotherm (2.8 vs. 0.49). As was mentioned previously, the general circulation has been well studied in this area. Northbound water of equatorial origin has been determined to flow beneath the generally southbound California Current. If the assumptions are made that the slope of the isotherms at this depth are indicative of the slope of the isopycnals and the fields of mass and pressure are in mutual adjustment, then the isobars tend to slope down from

east to west resulting in a northbound current at these depths. Although this conclusion is based on speculation, it does agree with what has been measured.

Unfortunately, the lack of data on the slope of the isohalines precludes a stronger analysis. Under the assumptions, however, the increased slope of the isotherms with depth is expected. This again points up the need for data and knowledge of the oceanography of a region so as to be able to predict, albeit in gross terms, the structure of the acoustic field.

Four hourly B.T.'s (# 114 through # 118) were taken on January 19, 1966 at $33^{o}53'$N, $121^{o}02'$W (Figure 2-4). The total excursion of the mixed layer depth was 60 feet, from 140 feet to 200 feet in depth. The mixed layer temperature increased by 0.5^{o}F during this time. B.T. # 118 shows a slight inversion in the surface layer, which may be due to radiative cooling. The 55.5^{o}F isotherm increased in depth from 180 feet to 232 feet, or a 52-foot excursion. The warming of the surface layer in this manner, during the time 16:55 to 20:10, indicates an intrusion of warmer water with its leading edge at the surface. Rather than due to internal waves alone, it appears that a meander in the circulation passed into the test area or, possibly, the incursion was due to the tidal advection of warmer, inshore water.

Although the bathythermograph run was completed two days before the first infrared radiation thermometer (IRT) flight and four days before the flight on which good data was taken, the B.T.'s tie in with the IRT data and the sound velocity profiles (SVP) taken by PERMIT. The picture that unfolds when interpreting the data, as limited as it is, from these three sources reveals a complexity in the environment that implies the necessity of refined environmental sampling in any acoustic experiment.

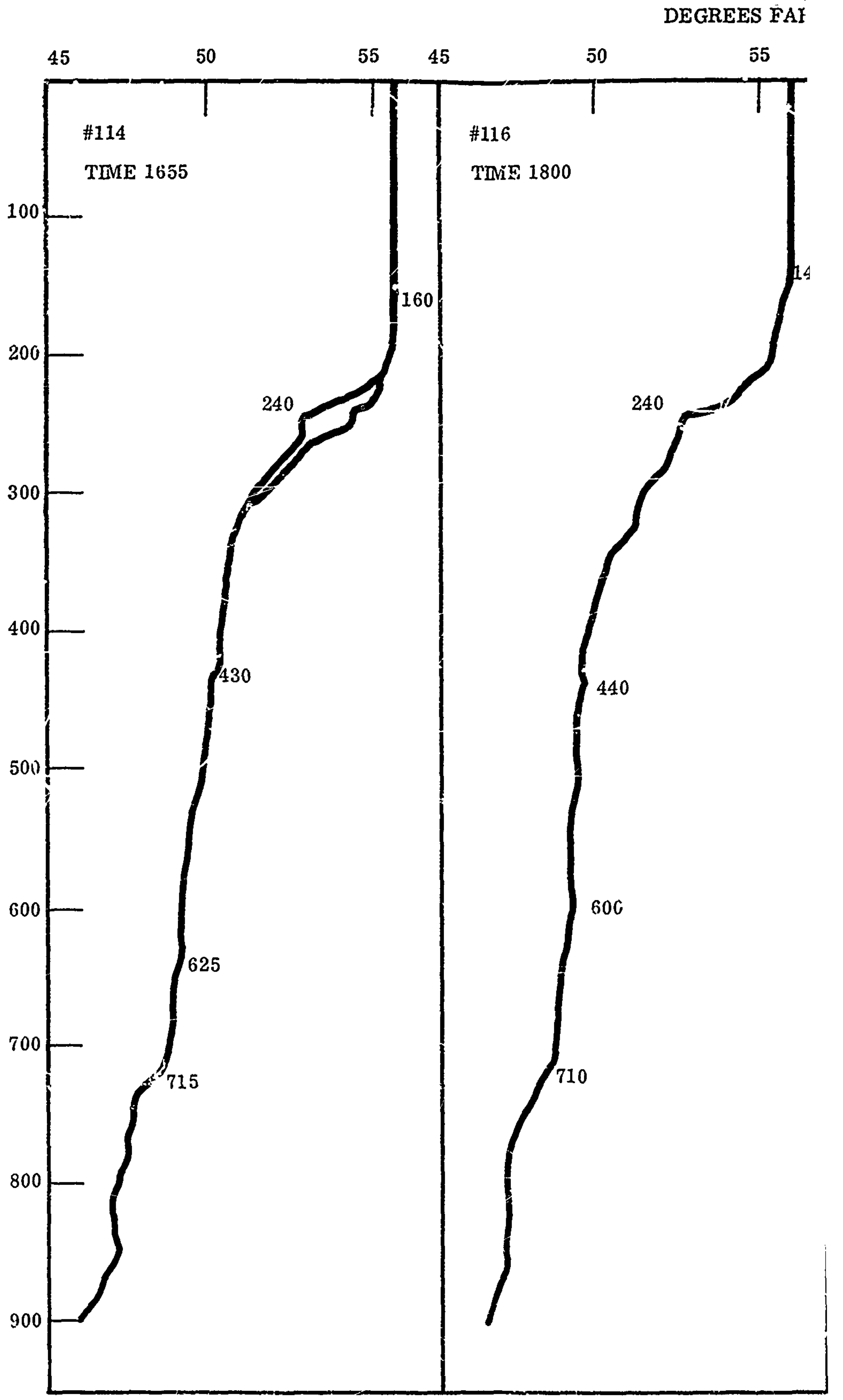
Three IRT runs were scheduled, one of which was to be at night to document the day-night effect. The sampling track was set up such that the longer sampling legs were normal (northeast-southwest) to the coastline with shorter interconnecting legs running parallel (northwest-southeast) to the coast. The sampling pattern was designed this way on the assumption that the general orientation of the sea surface isotherms would be parallel to the coast, with colder water offshore. This assumption was based on the known circulation of the California-Davidson Currents system and verified by researchers on the West Coast.

As can be seen from Figure 2-5, the isotherm pattern existing at the time of the tests was far more complicated. Figure 2-5 shows a pincerlike formation of cold water in the top (northwest) section of the 30- by 60-mile wide survey area and warmer water in the bottom (southeast) section. This anomalous situation was noted by the Tiburon Marine Laboratory (BCF) and a week earlier by the Fisheries Research Board (Canada) personnel. As was mentioned previously,

DATE 19 JAN 66

LAT 33° 53'N

LONG 121° 02'W



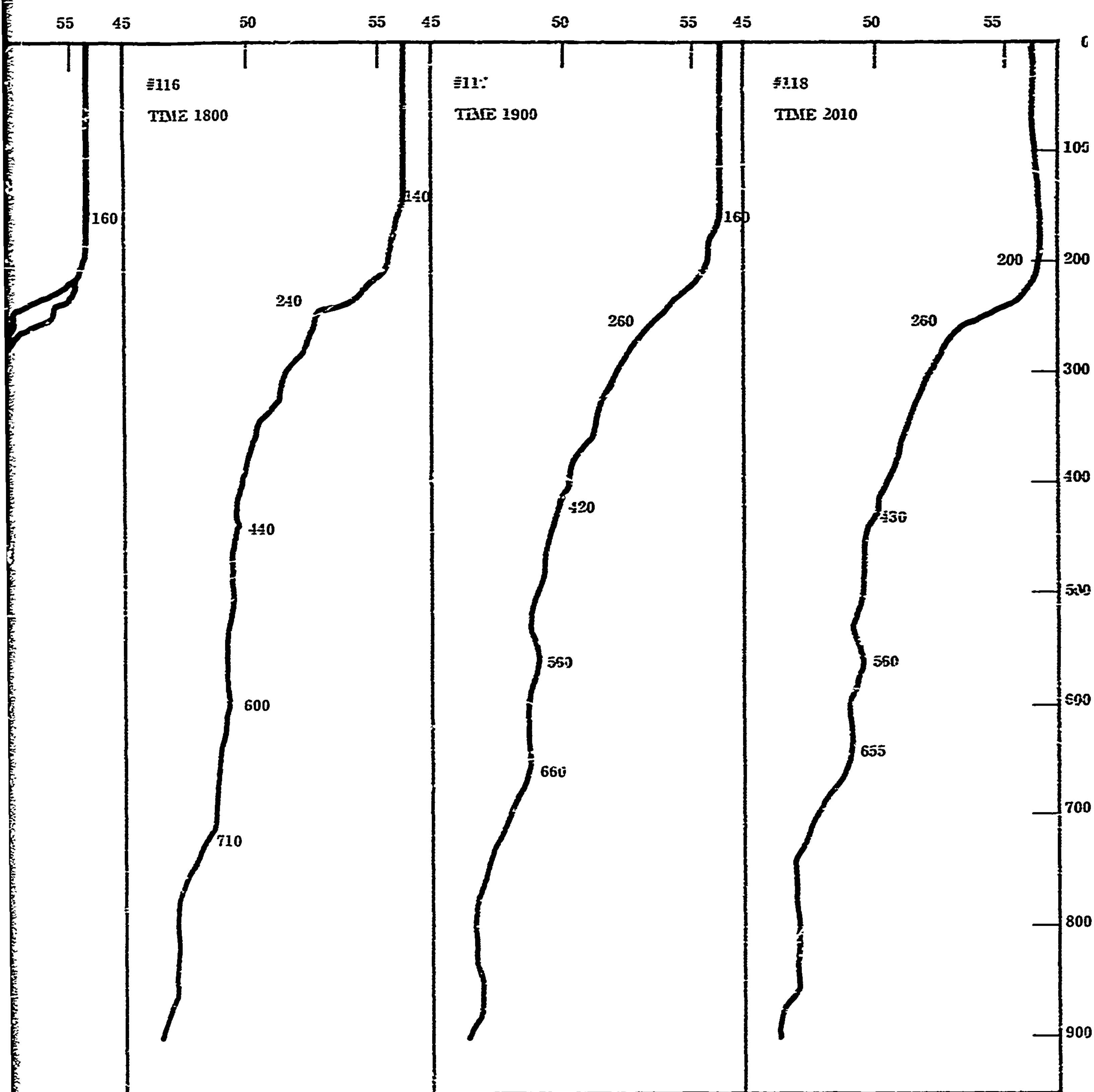


Figure 2-4 B.T.'s #114 through #118

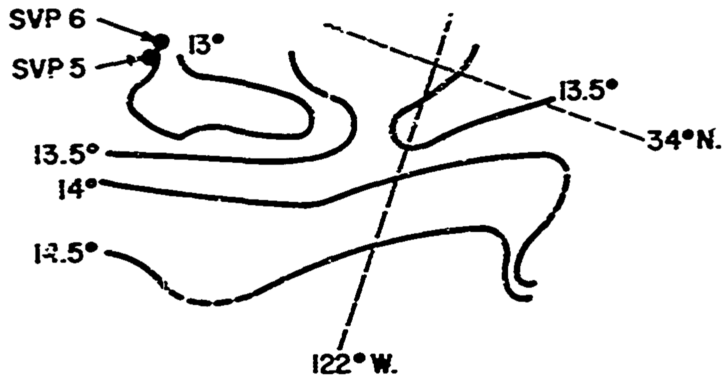


Figure 2-5 Isotherm Field At the Time of Test

the isotherms were expected to be running generally northwest to southeast, but, as is evident from this plot, they are generally running northeast-southwest. This indicates a renewed flux of cold water from the north or a meander in the circulation. This plot was one of three based on a good trace, or one in which the noise level was low. Some information is available from the previous runs and can be tied into this plot to indicate a time history of the circulation pattern over these three days (Figure 2-6).

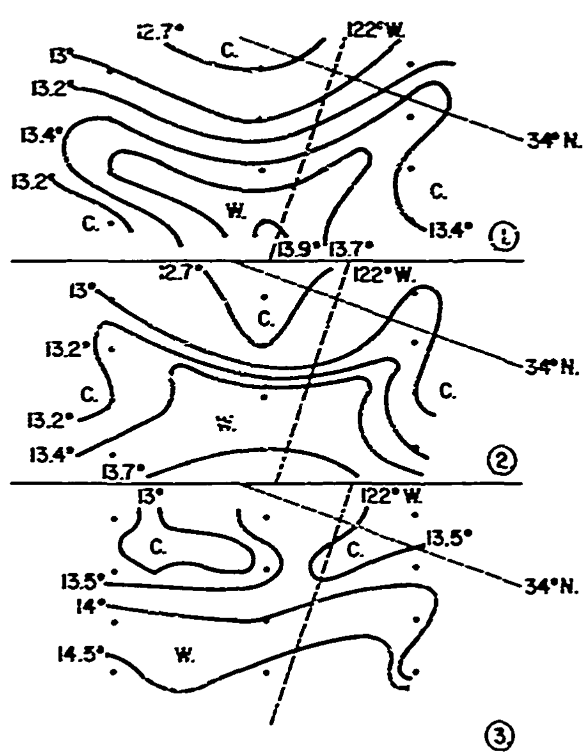


Figure 2-6 Three-Day Surface Temperature (Airborne IR) Pattern

The IRT run on January 19, 1966 from 1401 to 1557 hours shows a general east-west orientation to the isotherms, slightly concave northwards, showing a gradual influx of cold water from the north into the survey area. There is also indication of warmer water pushing southwest on the east side of the survey area.

The IRT run on January 20, 1966 from 0509 to 0656 hours shows a gradual destruction of the east-west orientation of the isotherms, especially on the north side of the survey area. The influx of colder water from the north is becoming more apparent as the concavity of the isotherms to the north is increasing. On the west side of the survey area another influx, or pincer, of colder water is apparent. On the east side, the intrusion of warmer water to the northeast has abated, as the temperatures in this tongue have dropped somewhat. It may be that this was not warm water pushing northeast and cooler water pushing southwest, but only the latter. This inference seems strengthened by the general temperature decrease in the southeast part of the survey area and the increase in the temperature gradient in this region coupled with the decrease in the gradient in the northeast part of the area.

The first two runs, although composed of noisy data, do show a flow of cold water from the north and pincers of cold water coming in from the sides of the survey area. It is interesting to note the change in location of the most southerly part of the 12°C isotherm. In the thirteen hours from run one to two, it had moved ten miles or at an average velocity of 0.75 knots.

The third IRT run, on January 21, 1966 (#3) from 1022 to 1213 hours, shows the complete destruction of the previous orientation of the isotherms on the northern side of the area. It appears that the influx of cold water on the northern side has abated while the pincer movement of colder water from the sides has intensified. The southern side of the area has regained the east-west orientation of isotherms.

The net effect of what has happened over the three-day period is that cold water has moved in from the north and, in a pincer-like movement, detached a portion of the warmer water.

In attempting to integrate the IRT and B.T. data, it should be noted that B.T. # 112 was taken on January 17 at 2345 while the first IRT run was on January 19 at 1500. As a result, one must assume that the general structure of the sea surface isotherms in evidence on the first IRT run was existent during the B.T. run. On this assumption, it then appears that although the B.T. run did pass from warmer water to colder, the end of the run was through an eddy or meander rather than a well-defined water mass boundary oriented northwest to southeast. Since the vertical stratification varies when sampling through a warm intrusion or a cold pincer formation, as noted, isotherms will also vary in depth during the sampling run. This variation in isotherms' depth is a

result of the stratification associated with meanders as well as internal waves present in the area (Figures 2-7 and 2-8).

Experience gained during this exercise indicates that future IRT sampling programs should be of two distinct types. The first type of IRT sampling program should be on a large scale, both before and after the tests. This type of sampling would yield information on the gross changes in the environment during the tests. The second type should be on the scale of the tests and the flight tracks should be closely spaced. This type of sampling would yield data on the fine structure of the test area and would be integrated with thermistor and/or bathythermograph data.

The sound velocity profiles (Figure 2-9), seven in number, taken by the PERMIT have been adjusted to account for separation of approximately 30 feet between the pressure transducer and the velocimeter. The range of mixed layer depth varies from 100 feet (SVP # 5) to 240 feet (SVP # 7), and the mean depth is 194 feet. This compares well with a mean layer depth of 190 feet from the bathythermograph data. SVP's #2 and 3 were about two nautical miles apart in space and two hours apart in time. The surface layer sound velocity value did not change but the layer depth increased by 20 feet, from 180 to 200 feet. Of more interest is a comparison of SVP's #5 and #6, taken some 18 hours after #2 and #3, and about 20 miles away. SVP's #5 and #6 (Figure 2-10) are about two miles apart in space and one hour in time. The mixed layer depth increased from 100 feet to 210 feet, an excursion of 110 feet, during this sampling interval. The surface layer velocity did not change nor did the velocity at 470 feet. In addition, there is a slight positive velocity gradient or bump in both profiles at about 420 feet. Therefore, it is concluded that the measurement is real and not due to instrumental error.

The maximum change in velocity occurred at a depth of 210 feet and was 25 feet per second. Assuming a constant salinity, the temperature must have changed by 4°F at that depth during the sampling interval to bring about this velocity change. This temperature change at constant depth is the greatest measured, although the change at 240 feet from B.T. # 109 to # 110 was 3°F. An evaluation of horizontal temperature gradients between the SVP's and B.T.'s cannot be made because of the differing sampling intervals. The third IRT run over the area was completed about five hours after SVP's #5 and #6 were taken. The cold tongue, or pincer, on the northwest side of the survey area, as noted previously, extended through the area of SVP's #5 and #6. If the variation in layer depth was not caused by internal waves, it may well be that the sampling interval extended over the leading edge, or a cold wedge, of the intrusion. If, on the other hand, the sampling interval extended through a meander from an upwelling to a sinking region, the mixed layer would exhibit this change also.

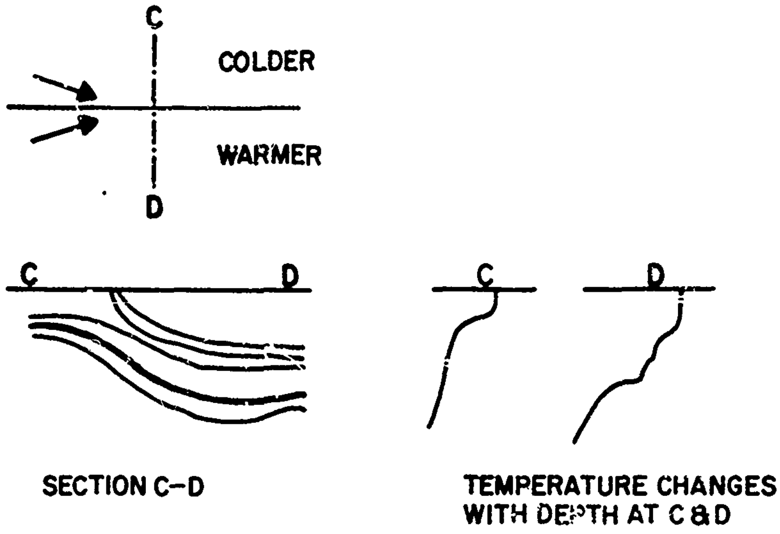


Figure 2-7 Structural Models of Convergences

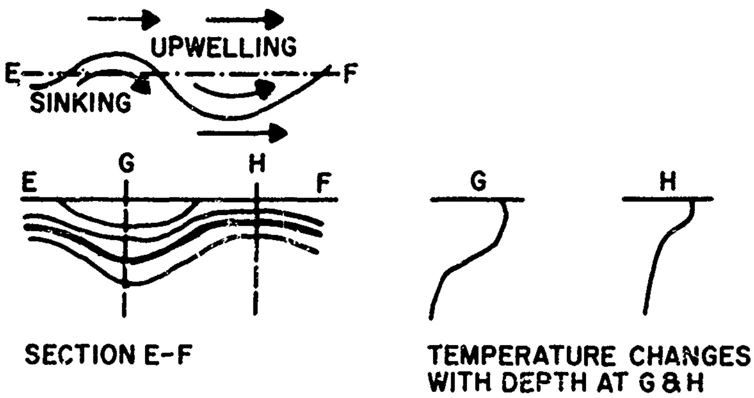
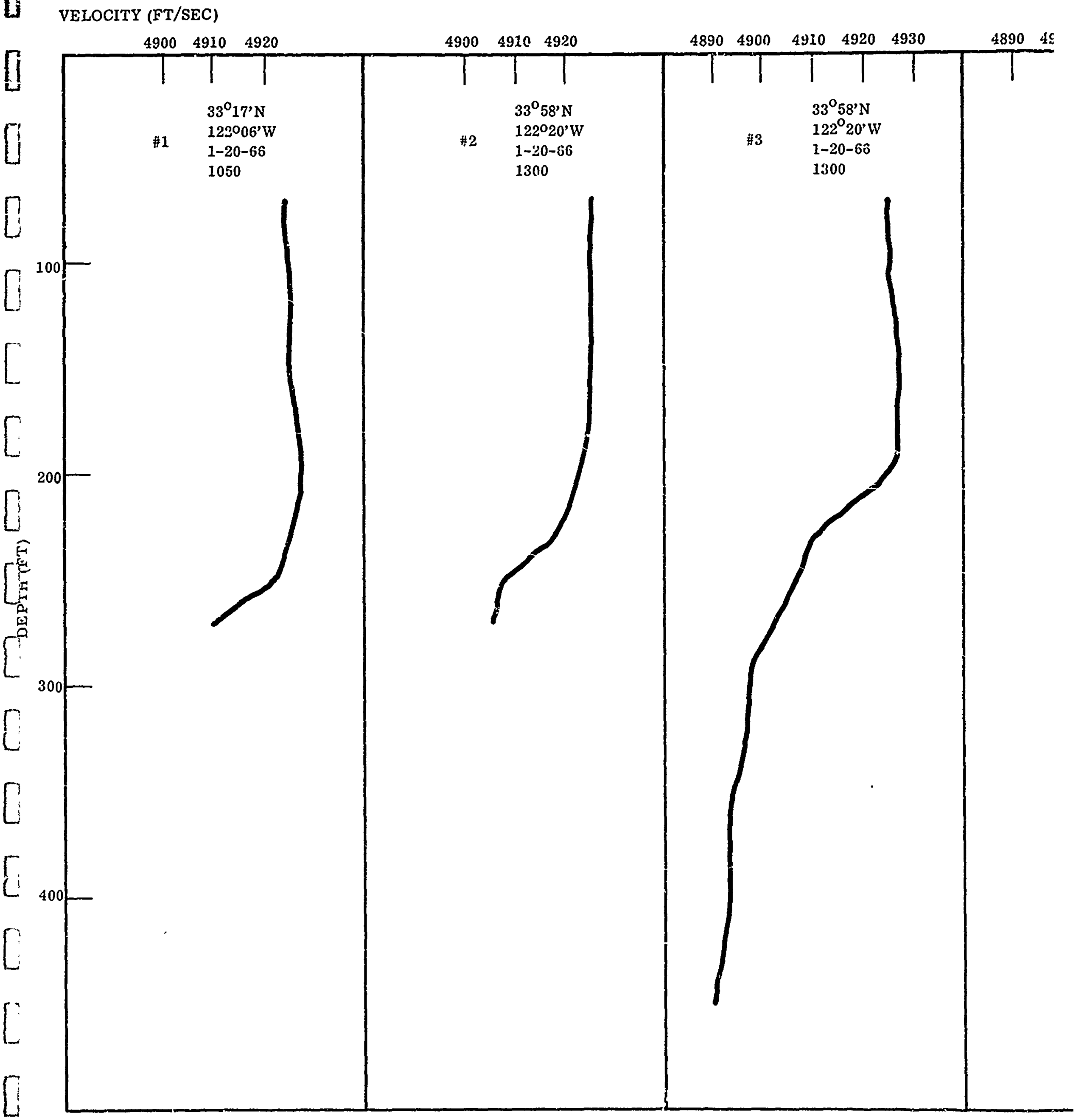


Figure 2-8 Upwelling and Sinking at a Meandering Boundary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4890
#1
33°17'N
122°06'W
1-20-66
1050
#2
33°58'N
122°20'W
1-20-66
1300
#3
33°58'N
122°20'W
1-20-66
1300
DEPTH (FT)
100
200
300
400

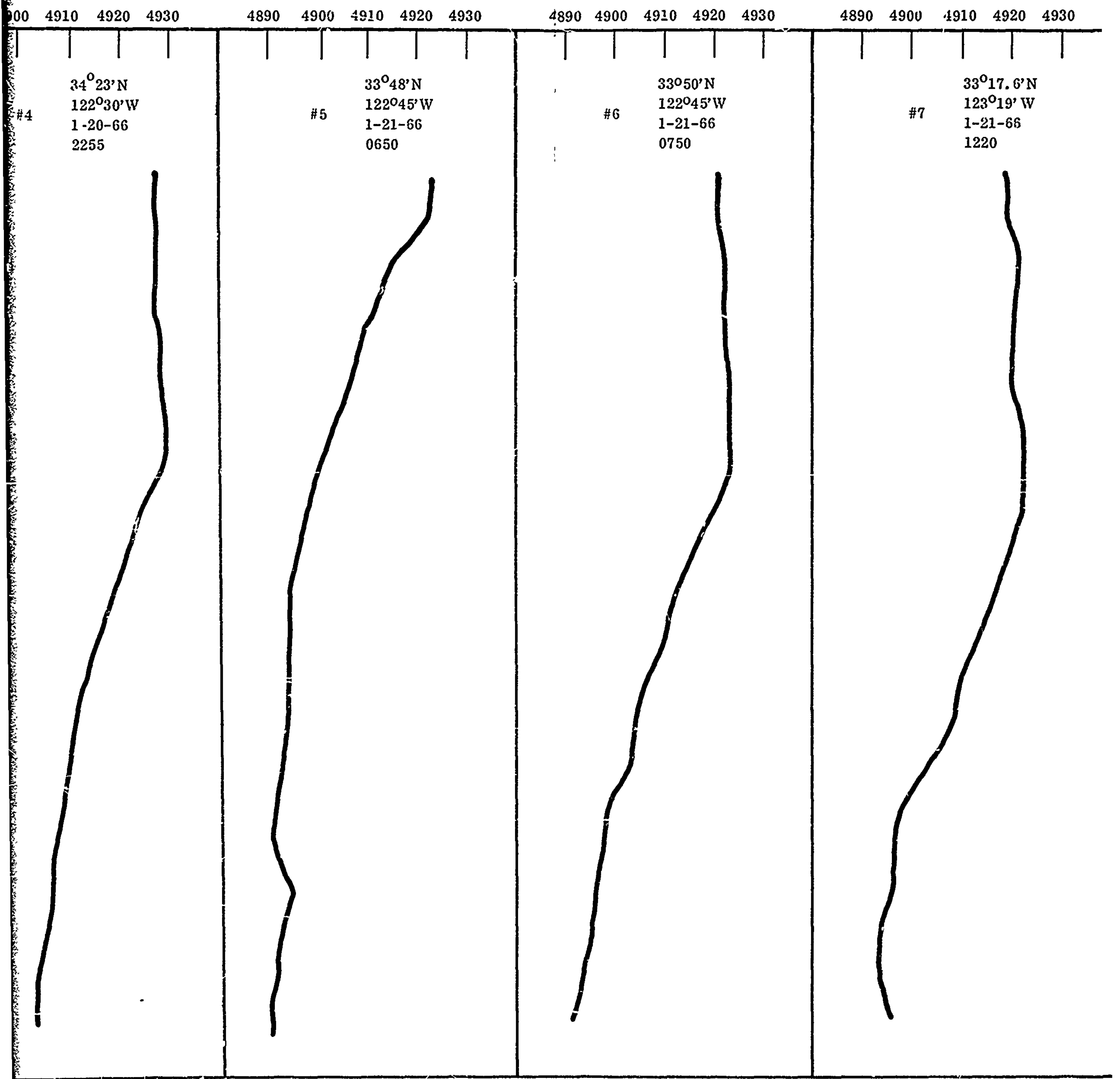


Figure 2-9 SVP's From USS PERMIT

2

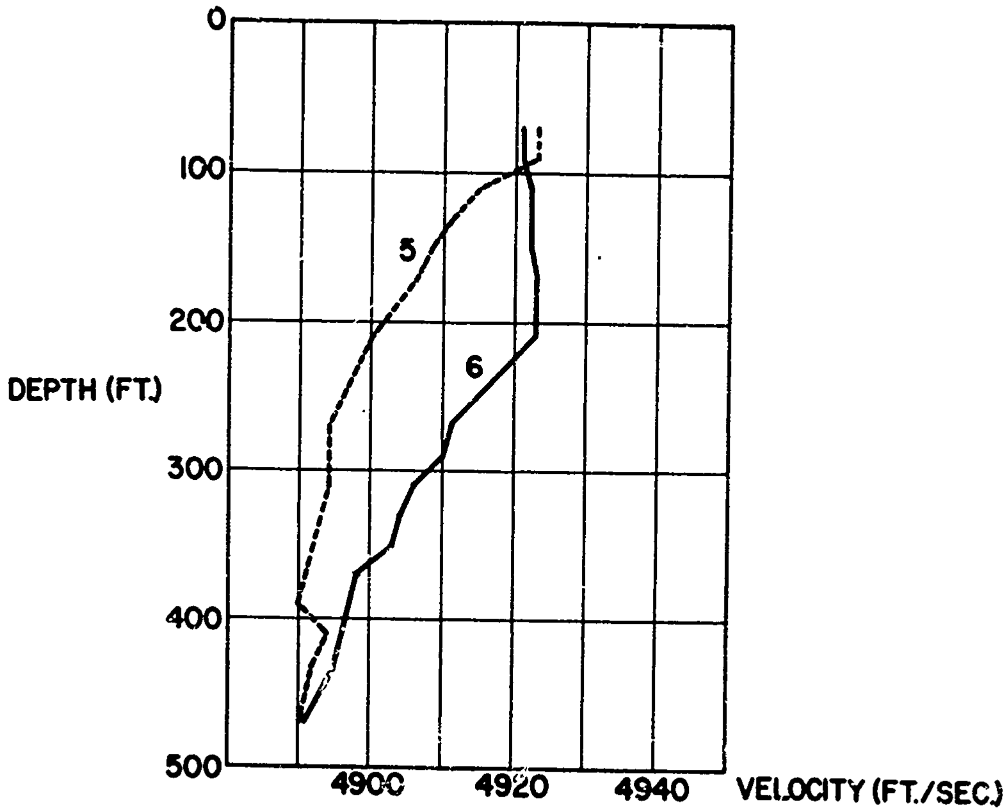


Figure 2-10 Comparison of SVP's 5 and 6

III

EFFECTS OF ENVIRONMENT ON ACOUSTIC TRANSMISSION

The purpose of the submarine tests involving the USS PERMIT and the USS BLUEGILL was to measure various transmission parameters, in particular signal-to-noise ratio (S/N). At the time of the experiment, a surface channel existed whose depth was approximately 200 feet, as determined from SVP's taken during the test, although this varied from a maximum of 240 feet to a minimum of 140 feet. Data was taken with the BQS-6 sonar in both active and passive modes. The results were compared to predictions made by a ray trace program and good agreement was obtained.

SINGLE-FREQUENCY MEASUREMENTS (ACTIVE SONAR)

Recordings of one-way transmission of active sonar signals from the USS PERMIT, as received on the USS BLUEGILL, were made with both ships moving at constant speed, on parallel courses, and at ranges of 5400 and 10, 000 yards (Figure 3-1). Both ships were in the surface channel with the PERMIT at a depth of 165 feet and the BLUEGILL snorkeling at a depth of

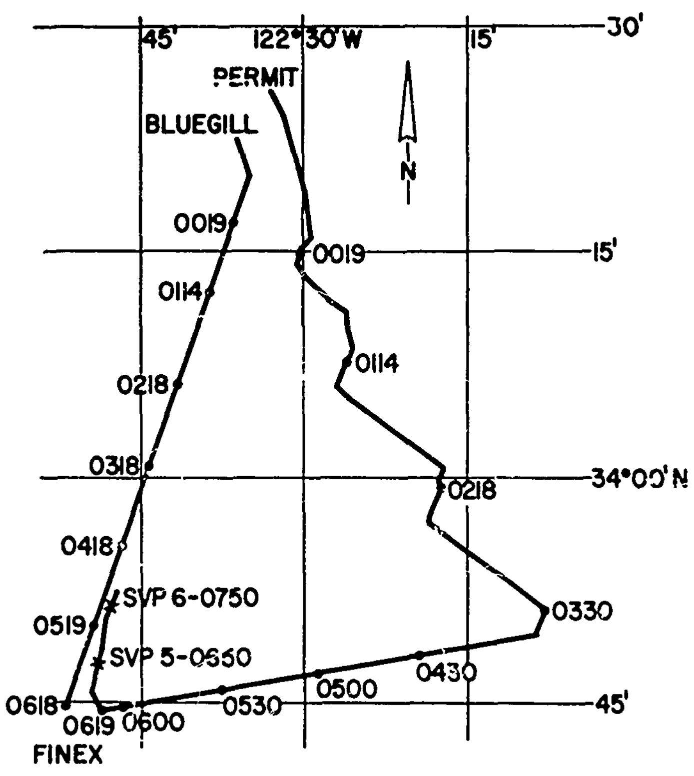


Figure 3-1 Track Chart for Run 2

TABLE 3-1

SUMMARY OF TEST CONDITIONS

Run #	Leg #	Nominal Range (yds)	Actual Range (yds)[1]		Depth[2]
II-1	1	5K	4680E	ATF	165
	2	10K	9500	ATF	165
5	3	20K	23500E	-	165
knots	4	40K	41000	-	165
	5	60K	56350	ATF	165
II-2	1	5K	5430E	ATF	165
	2(Note course change during passive run)	10K	10350	ATF	165
5	3	20K	21300	-	180
knots	4	40K	40000	ATF	150
	5	60K	60000	-	150
II-3	1	5K	5000	ATF	150
	2	10K	9900	ATF	150
8	3	20K	20000	ATF	150
knots	4	40K	40000	ATF	120
	5	60K	59500	-	120

[1] Where range is followed by B or E , sonar range at beginning or end of run is indicated. Otherwise, range is estimated.

[2] Depth refers to tracking ship keel depth. Center of BQS-6 sphere is approximately 15 feet less. Target keel depth equals approximately 55 to 60 feet for all runs.

60 feet. The sonar signals consisted of 150 msec pulses at a frequency of 3.5 KHz. Operating conditions are specified in Table 3-1.

Test instrumentation located on board the BLUEGILL consisted of a two-channel Ampex A. M. (direct) tape recorder. One channel was used to record the signal received by a single hydrophone of the BLUEGILL's sonar array; the other channel was used as a voice channel.

Test instrumentation on board the PERMIT (source ship) consisted of a 14-channel Precision Instrument F.M. tape recorder. Three of the channels were used to monitor a single MASSA hydrophone located on the sail 50 feet from the center of the BQS-6 sphere. The three channels recorded the same signal at three different amplifications in order to extend the dynamic range of the recording system. A fourth channel was used as a voice channel and the other ten were used to record signals unrelated to this experiment. Approximately 6-1/2 minutes of data were collected at each range.

Upon return to the laboratory, the signals recorded on both ships were played back, using the same machines on which they were recorded, and processed using a TR-48 analog computer. A block diagram of the computer program is shown in Figure 3-2. As indicated in Figure 3-2, the signals were processed to obtain the power envelope, the sum of the areas of all power envelopes, and the sum of the areas of the log of each power envelope. Each of these quantities was recorded on a Sanborn strip chart recorder. The peak amplitudes of the power envelope and log of the power envelope of each ping, i.e., instantaneous peak power, received on the BLUEGILL were read from the strip chart and used to calculate the mean and variance of the received signal (Figure 3-3). A similar calculation was made for the pings received by the MASSA hydrophone located on the PERMIT. This gave a measure of the variance of the transmitted signal. In addition to calculating the mean instantaneous peak power of the signals received on the BLUEGILL, the mean power of each ping was calculated by dividing the sum of power contained in all pings by the number of pings times the length of each ping. This was done for both the actual power and the log of the power in order to convert the power to dbv.

The analysis of the signals as received on the BLUEGILL is summarized in Figure 3-4.

The variance at 5400 yards is four times greater than that at 10, 000 yards, while at the same time the mean power is 2 dbv less, or about 63% of the mean power at 10, 000 yards. A similar analysis of the signals received by the MASSA hydrophone located on the PERMIT indicated that the signal level was constant to within $\pm$0.05 dbv of the mean value for all pings (both 5400- and 10, 000-yard ranges). Since the transmitted signal was constant, it is apparent that the variation in the received signal was introduced by the environment. (A direct comparison of the power received on the BLUEGILL and the power transmitted by the PERMIT is not possible because of the different recording techniques and hydrophones used.)

WIDEBAND MEASUREMENTS (PASSIVE SONAR)

The test geometry for the wideband measurements was identical with that used for the single-frequency measurements. The two ships were moving on parallel courses at constant speed (five knots) at each of the two ranges. The wideband

noise source was simply a snorkeling submarine (BLUEGILL) and the receiver consisted of the passive section of the BQS-6 sonar aboard the PERMIT. The received signal was filtered for the 1-2 KHz band.

Instrumentation for the wideband measurements was located entirely on board the PERMIT. It consisted of two TR-10 analog computers and the SUBIC At-Sea DDP-24 digital computer and associated peripheral equipment. The analog computers were used to obtain the signal-to-noise ratio because a recording of the received signal alone would be difficult to obtain due to masking by the ambient noise field.

The analog computers accepted signals from the right half and left half of the BDI loop of the BQS-6 sonar set, processed them, and fed them to the digital computer where the analog-processed signals were further processed to obtain signal-to-noise ratio. The digital computer also accepted information from the ship's sensors, such as target bearing, course, and speed (Figure 3-5). All of this information was averaged for about 2.5 seconds, and the average value of each quantity during this time was punched on paper tape. Approximately 20 minutes of data were taken at each range.

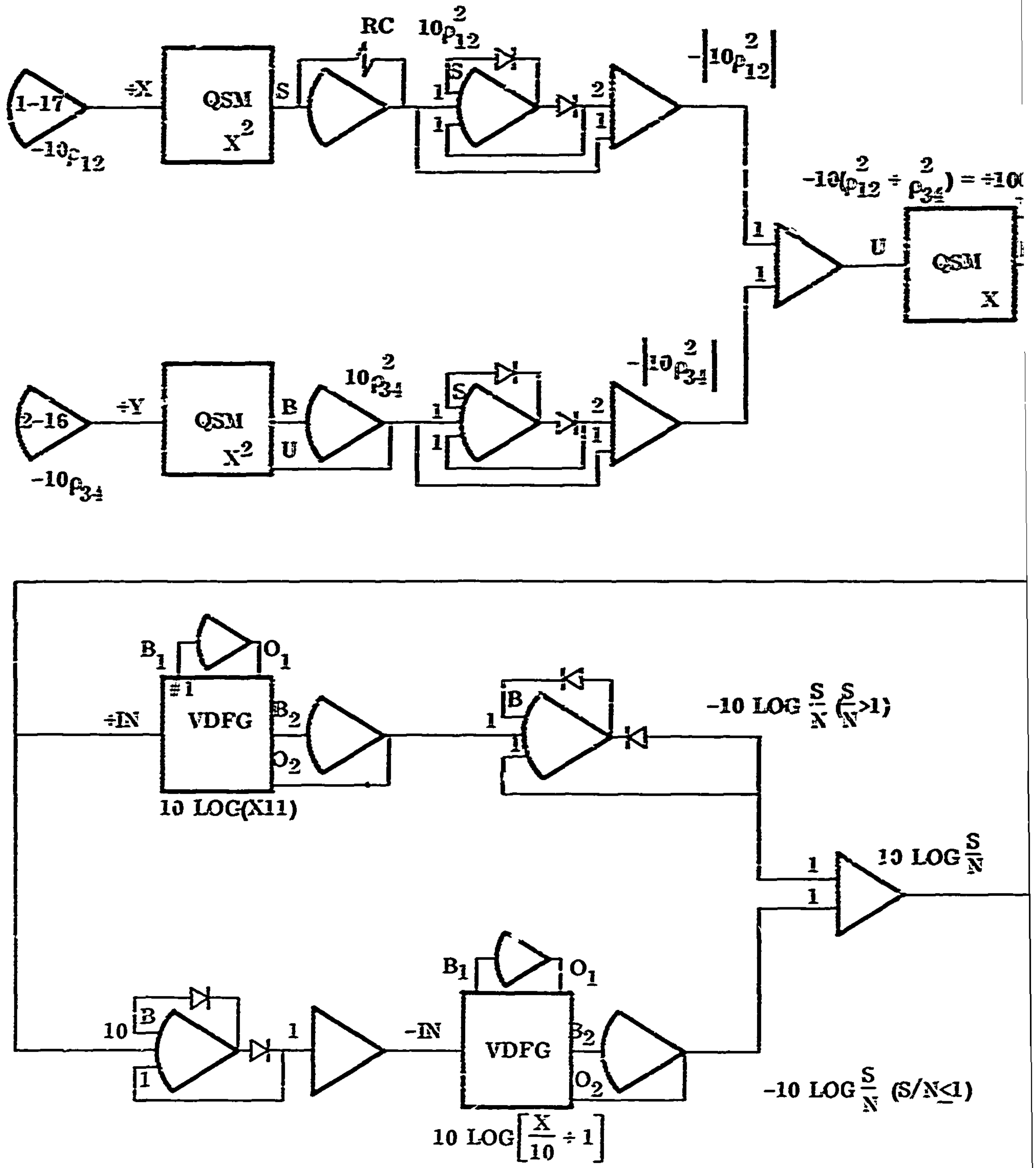
Upon return to the laboratory, the data tapes were printed in hard copy by the computer's typewriter. In addition, the mean, variance, autocorrelation functions for different lag times, and power spectrum of each of the recorded quantities was computed by the DDP-24 (see Section IV). A summary of the mean and variance of the signal-to-noise data is given in Figure 3-4.

At each range during the wideband noise measurements the BLUEGILL (noise source) was moving at constant speed, depth, and course and maintained the same position in relation to the PERMIT. During this portion of the experiment the BQS-6 sonar was in ATF mode. The PERMIT was also moving at constant course, speed and depth. Therefore, it may be reasonably assumed that the self-noise of each of the submarines, and the directivity index of the BLUEGILL relative to the PERMIT, remained constant during the experiment and that all variations in the signal (and, hence, signal-to-noise) were introduced by the environment.

COMPARISON OF WIDEBAND AND SINGLE-FREQUENCY MEASUREMENTS WITH RAY TRACE PREDICTIONS

Description of Operational Ray Trace Program Through Internal Wave Fields

The ray trace program used for propagation loss computations can consider a particular class of sound velocity profiles which vary with range as well as depth. The class of variations includes a model of the perturbations to the



1-17
+X
-10ρ12
QSM
S
X2
RC
10ρ12 2
-|10ρ12 2|
-10(ρ12 2 + ρ34 2) = +10
U
QSM
X
2-16
+Y
-10ρ34
QSM
B
U
X2
10ρ34 2
-|10ρ34 2|
B1
O1
+IN
VDFG
B2
O2
10 LOG(X+1)
-10 LOG S/N (S/N>1)
10 LOG S/N
10
-IN
VDFG
10 LOG[X/10 + 1]
-10 LOG S/N (S/N<1)

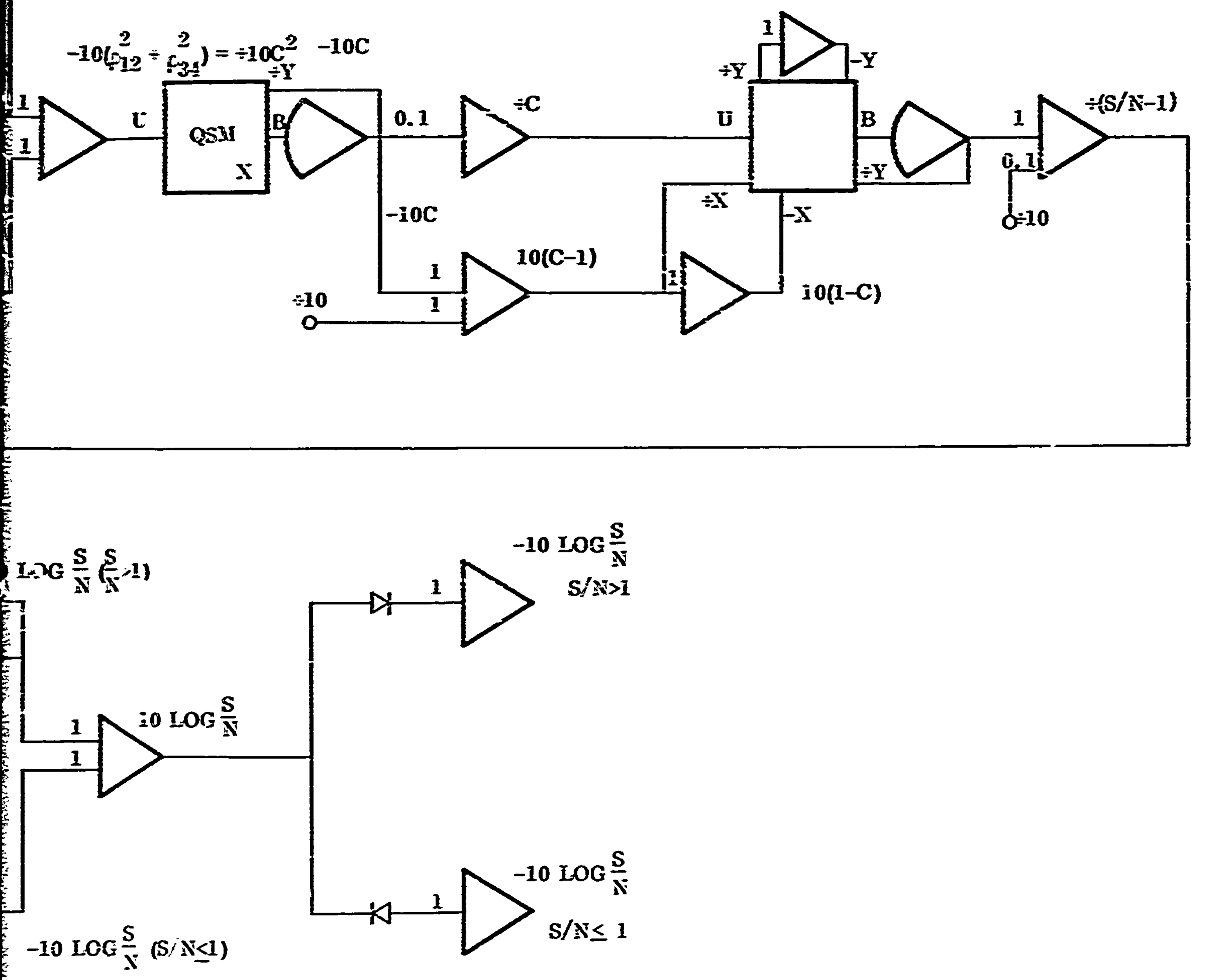


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Figure 3-2 TR-48 Computer Program for S/N

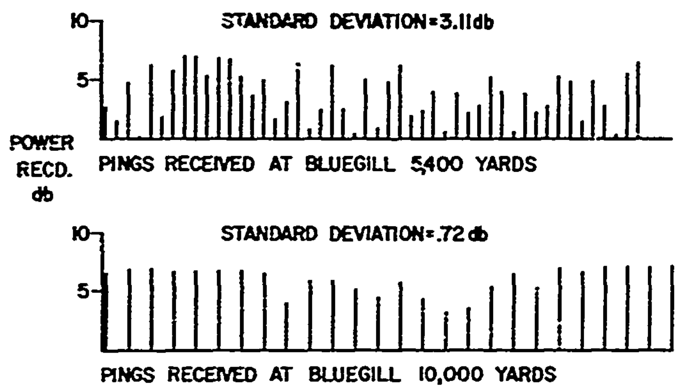


Figure 3-3 Time Series Record of Pings Received at BLUEGILL

		ACTIVE	PASSIVE
5.4 K YARDS	VARIANCE	6.22 $(db)^2$	6.62 $(db)^2$
	MEAN	5.91 db	-4.47 db
10 K YARDS	VARIANCE	1.44 $(db)^2$	-5.85 $(db)^2$
	MEAN	7.84 db	-5.47 db

Figure 3-4 Comparison of Active and Passive One-Way Transmission Loss Data

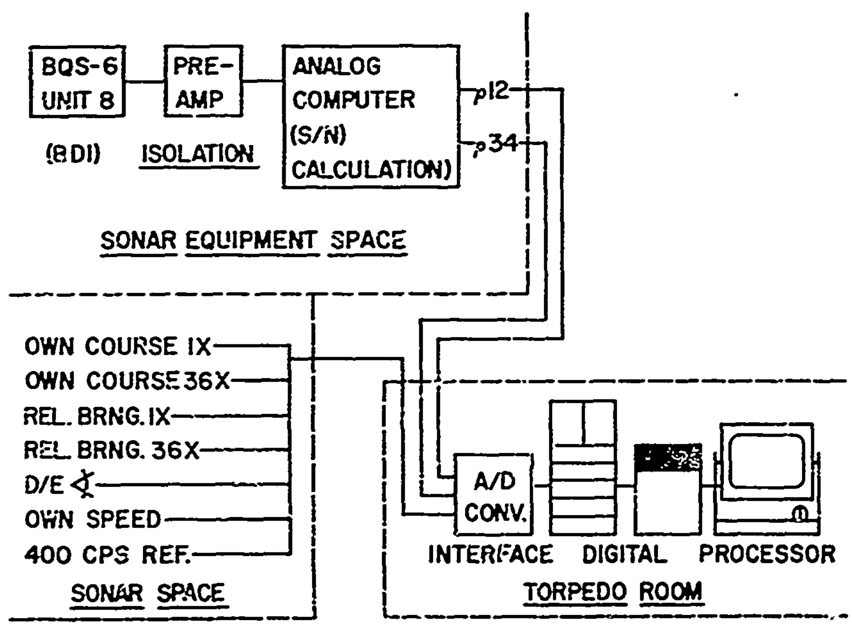


Figure 3-5 PERMIT Installation Block Diagram

profile normally associated with the presence of internal waves in the thermocline. The usual ray tracing program traces a ray through layers of constant sound velocity gradient. As a layer is defined by parallel lines, the velocity profile is implied to be stationary over the range of interest. This is a convenient oversimplification and one which, in the region of a thermocline particularly, is often incorrect. The existence of an internal wave field in the region of the thermocline, a phenomenon which has been repeatedly documented directly by thermistor chain measurements and indirectly suggested by acoustic measurements, disturbs the layer representation. The extension to ray trace being discussed purports to model this range dependent disturbance after the layer model.

Operationally, we will define the thermocline as a region of relatively sharply decreasing temperature. In many areas of interest in the ocean this occurs once or twice within a thousand or so feet of the surface; termed the permanent and the seasonal thermocline, these regions are capable of sustaining complex (water) wave motions called internal waves. As a result of this internal disturbance, a systematic change in sound velocity with range is set up which is, however, strongly confined to the strata defined by the thermoclines.

A simplified model of this variation was suggested by Lee[2, 3] when he considered the stratum of a thermocline to be a sinusoidally bounded region of constant sound velocity gradient (Figure 3-6). We have adopted this technique with the exception that the program can easily be extended to consider a sum of sinusoids to represent the boundaries, that is, a finite Fourier representation can be made of any periodic boundary. The final model will then consist of N "layers," each with its own velocity gradient. N-3 of these are layers in the full sense of the word. The two layers bounding the thermocline have only one boundary parallel to the surface and the last, the thermocline, has prescribed periodic boundaries. By necessity, given the N gradients and one boundary of the thermocline, the second boundary is not arbitrary. Instead, it is calculated by fulfilling the condition that at some depth below the thermocline, the medium, and therefore the sound velocity profile, is undisturbed.

To trace through the thermocline we have to return to the basic eikonal equations, as the literature is concerned almost entirely with layered media. The basis of calculations using a single velocity profile at all ranges, the ray constant, is no longer valid. On the other hand, the internal wave field in the thermocline is quantitatively only responsible for a perturbation on the ray paths and, therefore, the trajectory can still be thought of (to a good approximation) as continuous circular arcs. The radius of curvature at each point in space, directly derived from the eikonal equations, assuming cylindrical symmetry, is:

$$\frac{d\theta}{ds} = \sin\theta \frac{\partial c}{\partial r} - \cos\theta \frac{\partial c}{\partial z},$$

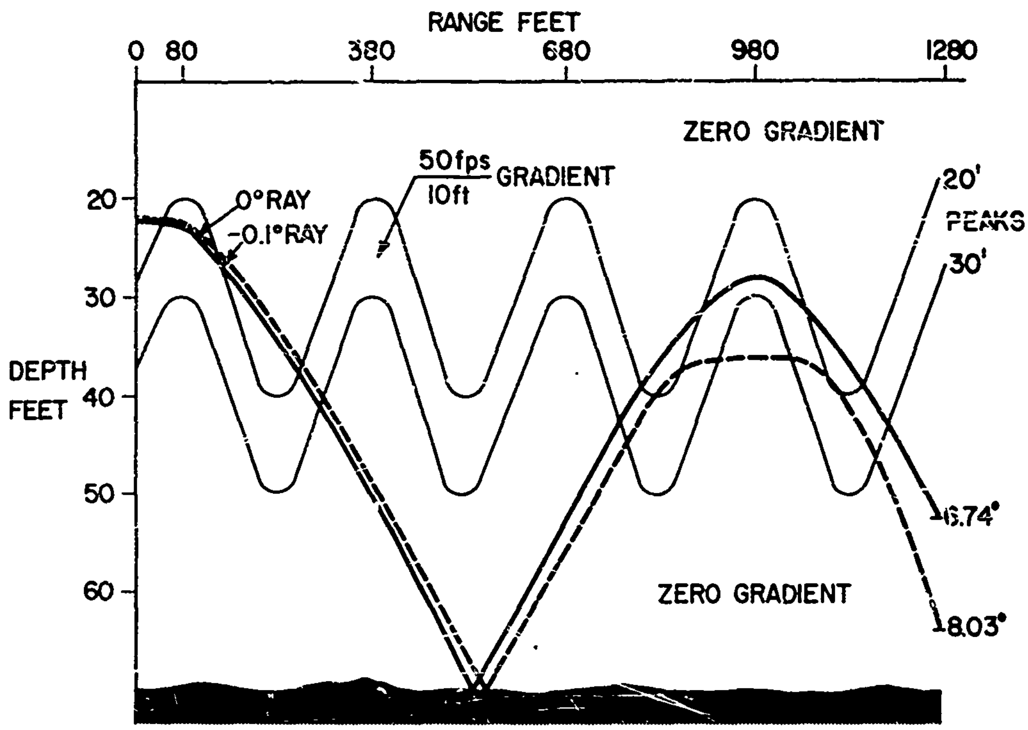


Figure 3-6 Model of Internal Wave

where θ is the angle the ray makes to the horizontal at the point (r, z), c is the speed of sound at that point, and s is the arc length along the ray to that point. By taking finite arc steps and calculating a new curvature at the end of each step, a differential approximation to the exact trajectory is achieved. The resulting program has been found to yield results numerically equivalent to Lee's study despite the fact that he used a very different approach to trace the rays and then an independent method of calculating energy.

The perturbation to the ray paths can be visualized as follows: the effect of a region of negative gradient is to bend rays towards the minimum velocity. The rate of bending (curvature) depends on the amplitude of the vector product $\frac{d\vec{r}}{ds} \times \vec{\nabla} c$, and the amount of bending brings into consideration the total arc length required to pass through the region. In the case of an undisturbed layer, grad c is always downward and the grazing angle to the layer, $\frac{dx}{ds}$, which is a monotonic function over a range of adjacent rays, requires that both the rate and the amount of bending will be monotonic over such a range. When the layer is disturbed, the direction of $\vec{\nabla} c$ varies so that the local grazing angle and the arc length to pass

through the region are no longer a function of $\frac{dx}{ds}$ alone, and the range of incoming rays over which monotonic bending applies is restricted by the scale of the disturbance. Over a characteristic wavelength of the disturbance, differential bending can occur for bundles of adjacent rays. This convergence and divergence of ray paths will result in corresponding changes in the sound intensity beyond the disturbed layer.

The ray trace program described above was used in an attempt to predict transmission loss and signal variance at the ranges of interest (5400 and 10, 000 yards). The SVP taken immediately prior to the 5400-yard measurement (SVP #4) was used as a base, with a sinusoidal perturbation inserted having an amplitude of 50 feet, based on results of the environmental survey, and a mean depth of 200 feet. The source was placed at 50 feet, corresponding to the depth of the BLUEGILL. Energy was calculated at 100-yard intervals at a depth of 150 feet, corresponding to the depth of the PERMIT.

Wavelengths (for internal waves) of 3000, 5000, and 9000 yards were chosen from the results of the autocorrelation analysis. The average decay time (to zero) of the autocorrelation function of S/N is approximately 150 seconds at 5 knots. When this is translated to distance, a result of

$$150 \text{ sec} \times \frac{5 \text{ N.M.}}{1 \text{ hour}} \times \frac{1 \text{ hour}}{3600 \text{ sec}} \times \frac{2000 \text{ yds}}{1 \text{ N.M.}} = \frac{15000 \text{ yards}}{36} = 420 \text{ yards}$$

is obtained. Recalling that the autocorrelation function of a sinusoid is another sinusoid of the same frequency, it is evident that the time required for such an autocorrelation function to decay to zero is equal to one-fourth the period (or one-fourth the wavelength). On the basis of the foregoing, the disturbance which caused the observed modulation of the S/N ratio and of the active signal must have dimensions of approximately 1700 yards. However, the disturbance is not a perfect sinusoid and, therefore, it is felt that this dimension simply represents the order of magnitude of the disturbance size.

The sinusoidal internal waves defined by the above parameters were moved past the sound source in 30° phase increments, yielding 12 values for energy at each range. These 12 values at the ranges of interest were then averaged to obtain the mean value of predicted transmission loss at that range, and also were used to obtain an estimate of the variance. The values of the mean and variances for each wavelength were plotted and may be found in Figures 3-7, 3-8, and 3-9. Figure 3-10 presents a summary of the predicted mean and variance of the transmission loss at the ranges of interest.

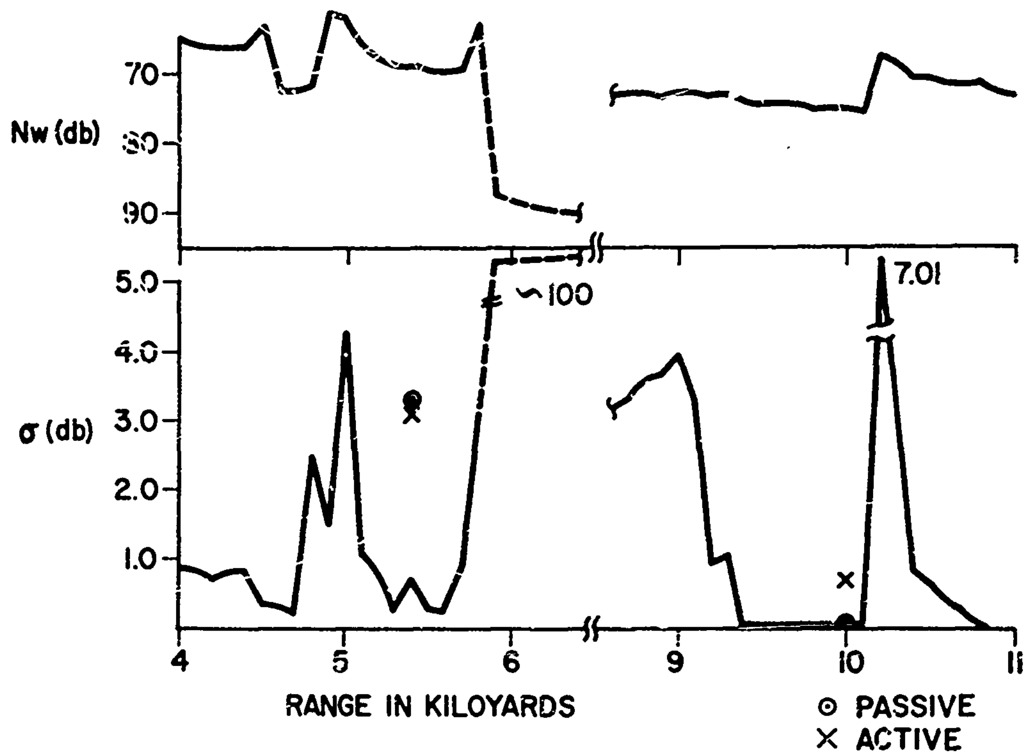


Figure 3-7 Predicted Nw and σ (λ = 3K YDS)

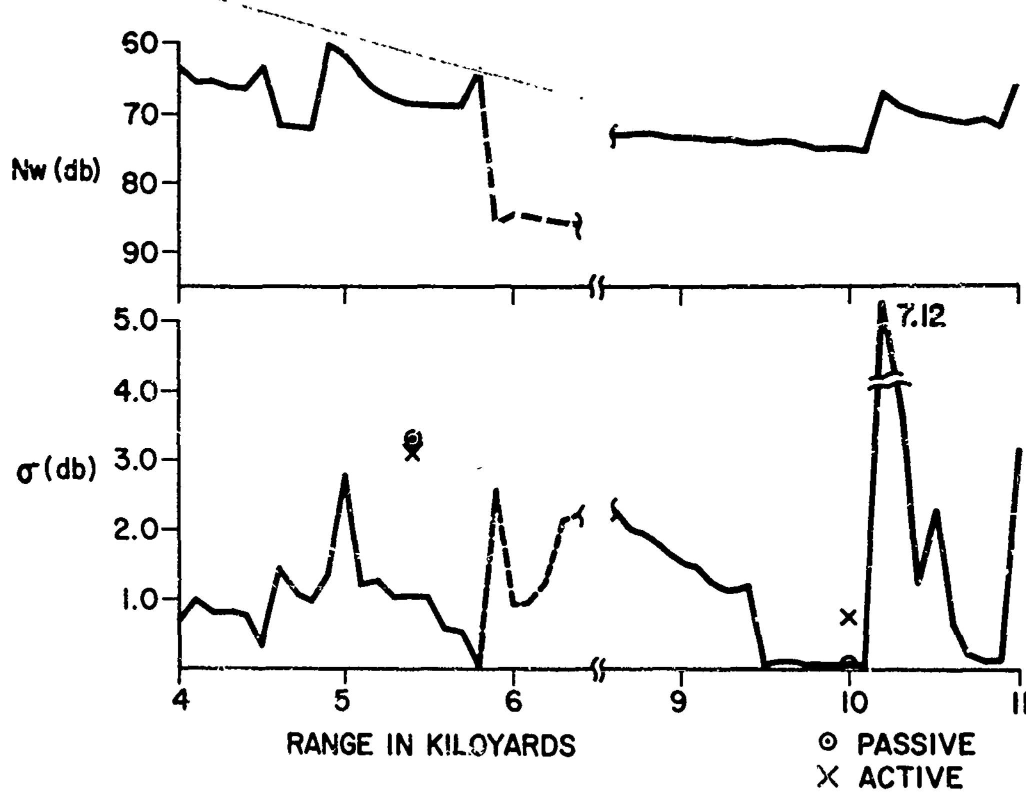


Figure 3-8 Predicted Nw and σ (λ = 5K YDS)

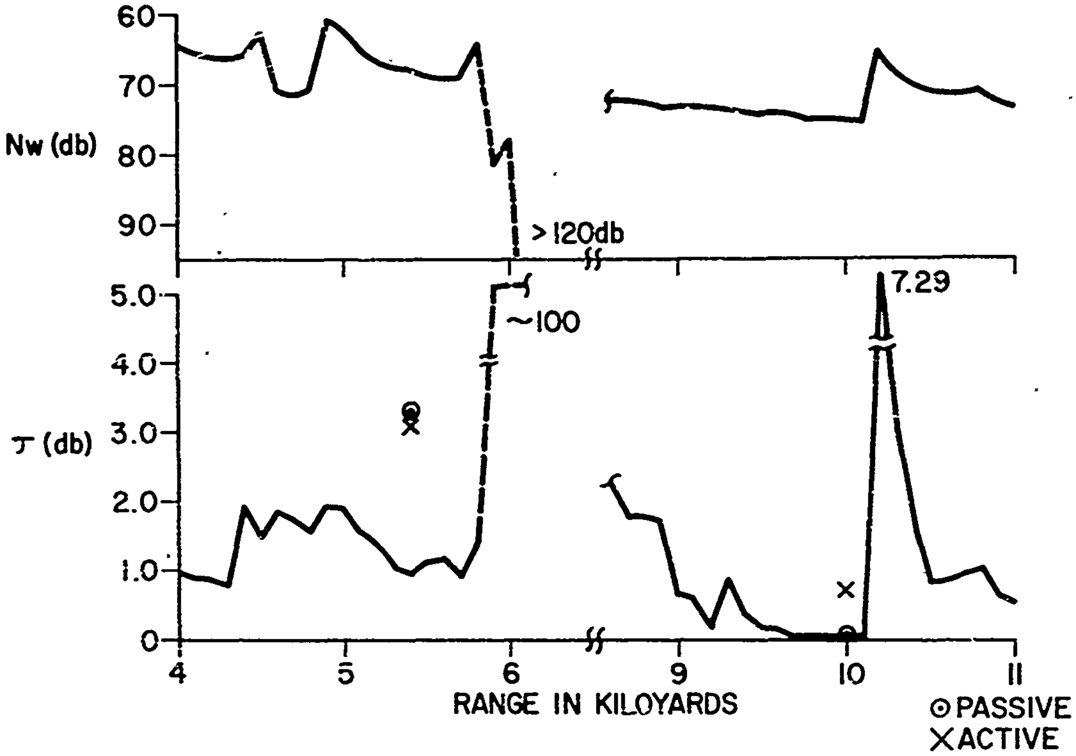


Figure 3-9 Predicted Nw and σ (λ = 9K YDS)

λ	RANGE	5.3K	5.4K	5.5K	9.9K	10.0K	10.1K
3K	MEAN (db)	68.68	68.94	69.60	75.20	75.20	75.60
	VAR.	0.06	2.48	0.09	0	0	0
5K	MEAN (db)	68.84	68.99	69.32	75.20	75.20	75.60
	VAR.	1.16	1.06	0.32	0	0	0
9K	MEAN (db)	65.67	67.76	68.67	75.20	75.20	75.20
	VAR.	1.29	0.95	1.17	0	0	0

Figure 3-10 Predicted mean and variance

From Figures 3-7, 3-8, and 3-9, the mean and variance of the transmission loss are, in general, independent of the wavelengths of the internal wave chosen. Also, in the range 5300 to 5500 yards, there is a moderate variation predicted in the signal strength, whereas in the neighborhood of 10,000 yards, the variation predicted is zero. Referring to Figure 3-4, this prediction agrees favorably with results obtained for both the wideband and single-frequency measurements discussed in the preceding sections. It is emphasized that both ships were in the surface channel, i.e., above the internal waves, and there is still a noticeable effect on the signal strength.

The physical explanation for the higher variance at 5400 yards may perhaps be most easily seen by referring to Figure 3-11. This figure shows a simplified ray diagram, indicating the positions of the PERMIT at 5400 and 10,000 yards. The calculation was based on the sound velocity profile taken immediately before the 5400-yard test, and was done without any internal wave representation being included. It may be seen that, at a range of 5400 yards and a depth of 150 ±5 feet, the PERMIT was at the edge of the ensonified region. By contrast, at a range of 10,000 yards and a depth of 150 ±5 feet, the PERMIT was in the middle of the acoustic field. Under these conditions, a small disturbance to the depth of the thermocline would have a major effect on the acoustic energy at the 5400-yard range, while it would have a minor (if any) effect on the acoustic energy at 10,000 yards.

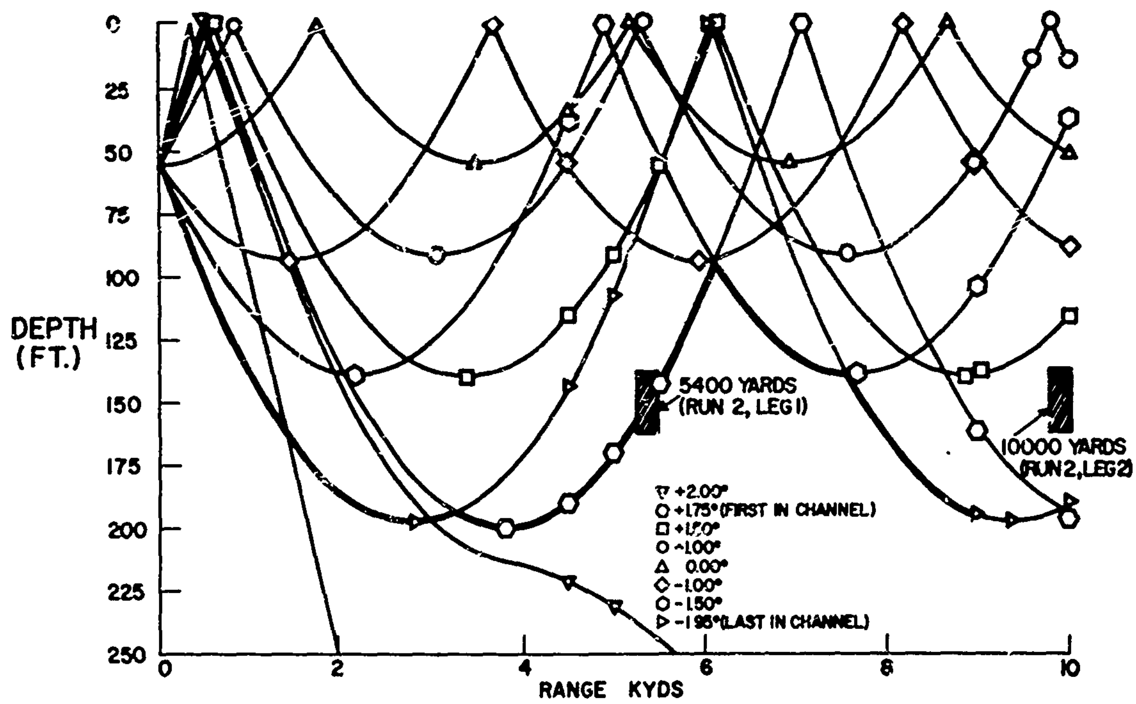


Figure 3-11 Position of PERMIT Relative to Predicted Acoustic Field, Run 2, Legs 1 and 2

It may be argued that the observed variance might also be due to the influence of surface fluctuations, causing the surface-reflected rays to deviate from specular reflection from an ideal flat surface. At the time of the test, surface conditions observed were 9- to 10-second swells. Therefore, it may be expected that this period would show up as a strong component in the S/N power spectrum if the surface were affecting the signal in the 1 to 2 KHz band. An estimation of the spectrum, calculated by the DDP-24 computer, does not show any peak in the 1 Hz region for either the 5400- or 10,000-yard ranges. It is therefore concluded that the surface fluctuations did not have an important effect in the 1 to 2 KHz band.

Referring again to Figure 3-4 for the wideband measurements, the mean value of energy at 10,000 yards dropped to about 63% of the value that it had at 5400 yards, or a drop of about 2 db. At the same time, the mean value of energy at 10,000 yards for the single-frequency measurements increased by about 2 db over the value at 5400 yards. These results, which at first may seem contradictory, are not inconsistent with the data.

If we let:

S_1 = mean value of single-frequency signal at 5400 yards

S_2 = mean value of single-frequency signal at 10000 yards

S_3 = mean value of wideband frequency signal at 5400 yards

S_4 = mean value of wideband frequency signal at 10000 yards

N_1 = noise (broadband)

N_2 = noise (single frequency)

C = amplification factor for single-frequency signals

We may now obtain the following independent equations.

$$\frac{S_3}{N_2} = 4.30 \tag{1}$$

$$\frac{S_4}{N_2} = 2.66 \tag{2}$$

$$(S_1 + N_1) = 3.90C \tag{3}$$

$$(S_2 + N_1) = 6.00C \tag{4}$$

It is evident that these are six unknowns (C is a parameter) and only four independent equations. In order to obtain unambiguous results, it is necessary to know either $S_3 + N_2$ and $S_4 + N_2$ or $\frac{S_1}{N_1}$ and $\frac{S_2}{N_1}$. This would yield six independent expressions from which it would be possible to determine all of the unknown quantities.

The present ray trace program considers the signal as a broadband one, treating all frequencies with equal weight. Referring to Figure 3-10, it is seen that the predicted result is a loss of about 7 db between the 5400-yard and the 10,000-yard ranges. This corresponds, qualitatively, to the experimental observations in the wideband case where there was a loss of about 2 db. The difference between the predicted and observed transmission loss for the single-frequency measurements may be explained by several different phenomena. First, phase interference at 5400 yards, phase reinforcement at 10,000 yards, or a combination of both may account for the discrepancy. Second, the assumption of a constant noise field at both ranges may not have been correct. This would also possibly account for the discrepancy in the magnitude of the predicted and observed transmission loss between the two ranges. There are, in addition, many other factors which may contribute to this difference, some of which may be completely unknown to us.

IV

AUTOCORRELATION RESULTS

INTRODUCTION

Part of the analysis of the S/N data performed after returning to the laboratory consisted of obtaining the autocorrelation of the data about its least-square fit line as a function of lag time. This was done using the DDP-24 computer with a special data reduction program. This program displays the raw data (S/N, bearing, course, speed, or D/E angle) in blocks of up to 100 data points at one time. Sections of up to 1000 data points, on consecutive scope displays, may then be selected by the light pen for statistical analysis.

The statistical analysis section of the program computes the least-square fit, mean, and variance of the selected data. These quantities are then used to compute the autocorrelation about either the mean or the least-square fit line, which is then displayed on the scope. The values may then be printed by the typewriter, the power spectrum of the data may be computed and displayed (and printed, if desired), or the computer may be instructed to return to data inspection. All of these alternatives are selected by means of the light pen. Typical scope displays generated by this program are illustrated in Figures 4-1 through 4-7.

The form of the autocorrelation function about its mean suggests that it consists of two statistically unrelated components. Thus, for a stationary random function of time, f(t), which can be written as

$$f(t) = f_1(t) + f_2(t)$$

when

$$\frac{\langle f_1 f_2 \rangle}{\langle f_1^2 \rangle} \ll 1$$

and

$$\frac{\langle f_1 f_2 \rangle}{\langle f_2^2 \rangle} \ll 1,$$

then

$$\langle f^2 \rangle \cong \langle f_1^2 \rangle + \langle f_2^2 \rangle$$

Here, $S/N = 10\ \mathrm{Log}_{10}\ S - 10\ \mathrm{Log}_{10}\ N$

and $f(t) = S/N - <S/N>$

$$= 10\ \mathrm{Log}_{10}\ S - 10\ \mathrm{Log}_{10}\ N - <10\ \mathrm{Log}_{10}\ S - 10\ \mathrm{Log}_{10}\ N>$$

$$= 10\ (\mathrm{Log}_{10}\ S - <\mathrm{Log}_{10}\ S>) - 10\ (\mathrm{Log}_{10}\ N - <\mathrm{Log}_{10}\ N>)$$

Suppose that both the signal and the noise are random, and, furthermore, that the correlation between the two is negligible. In this case, the "signal" is the noise radiated from the target ship as it appears at the position of the listening ship. It therefore includes any distortions introduced by the environment. The "noise" in this case is all other information received by the sonar system coming from the same direction as the target. We can then interpret the autocorrelation as the sum of two independent autocorrelations, related to the noise and signal terms. For convenience, these two independent functions have been termed the high- and low-frequency components of the autocorrelation, respectively.

The high-frequency component of the autocorrelation then is a measure of the variation in the noise, while the low-frequency component is a measure of the variation in the signal, induced by its passage through the medium. The lag time at which the autocorrelation crosses the zero axis is the time shift necessary for the signal and the time-shifted signal to become completely uncorrelated.

If the signal is thought of as a pure sinusoid, its autocorrelation would be zero when the two components are out of phase by $\pi/2$. Thus, as an approximation, it may be said that the time at which the autocorrelation crosses zero is equal to one-fourth of the period. If it is assumed that the signal is constant and is modulated by its passage through the medium, then the phenomenon causing the modulation has a period of approximately 600 seconds. If the ship's speed is taken into account, then this phenomenon has a spatial component of approximately

$$5 \text{ knots} \times \frac{6080 \text{ ft/hour}}{1 \text{ knot}} \times \frac{1 \text{ hour}}{3600 \text{ sec}} \times 600 \text{ sec}$$

$$= 5000 \text{ feet} = 1700 \text{ yards}$$

Because the signal we are dealing with is not a pure sinusoid, it is felt that this only gives an indication of the order of magnitude rather than an absolute measure of the size of the phenomenon (internal waves?) causing the modulation. This figure was used as a basis for the internal wave models described in the previous section.

293°

BEARING (AFT IN)

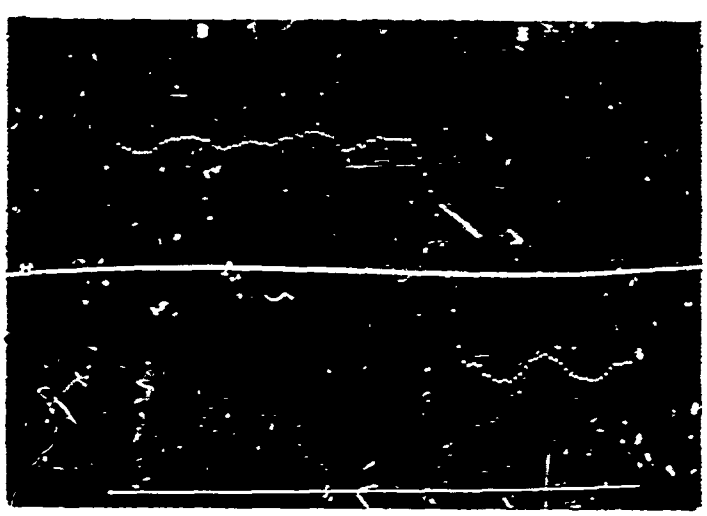
RUN2 LEG2
10,000 YARDS
EACH POINT = 2.5 SEC

Figure 4-1 Typical DDP-24 Scope Display of Bearing

SPEED (SLOWING FROM 12 TO 5KTS)

RUN 2 LEG 1
5000 YARDS
EACH POINT = 2.5 SEC

Figure 4-2 Typical DDP-24 Scope Display of Speed



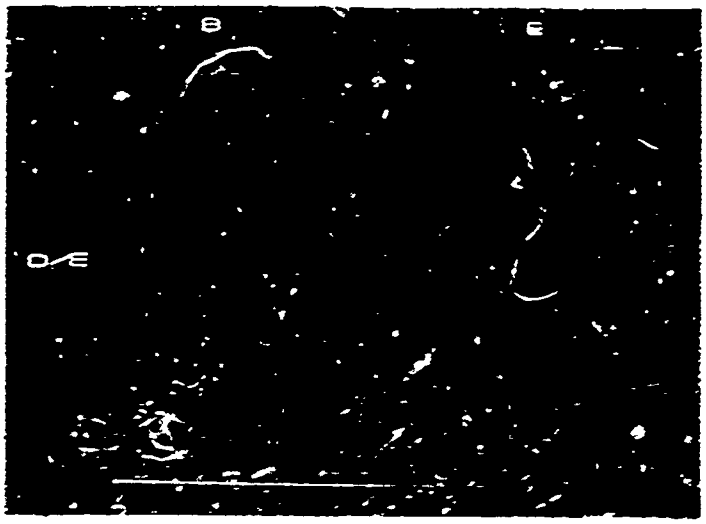
COURSE (SHOWING 20° TURN)

220°

RUN 2 LEG 2
10,000 YARDS
EACH POINT = 7.5 SEC

200°

Figure 4-3 Typical DDP-24 Scope Display of Course



D/E ANGLE

RUN I LEG 4
40,000 YARDS
(MANUAL—SEARCHING)
EACH POINT = 2.5 SEC

Figure 4-4 Typical DDP-24 Scope Display of D/E Angle

S/N

RUN 3 LEG I
5000 YARDS
(ATF IN — S/N = +3)
EACH POINT = 2.5 SEC

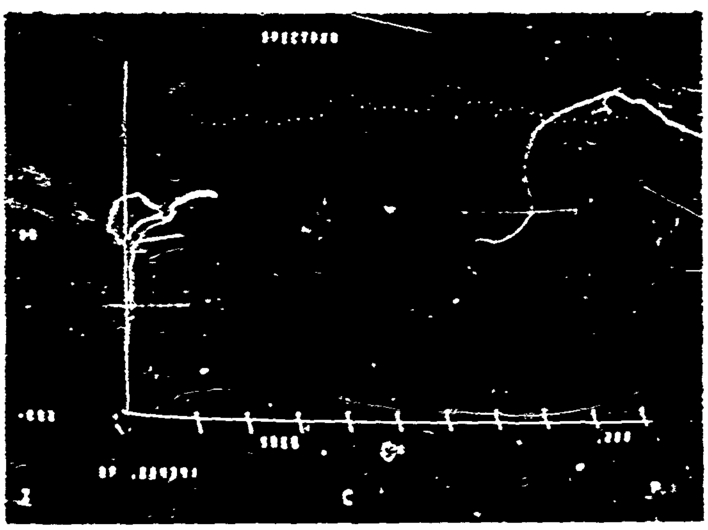
Figure 4-5 Typical DDP-24 Scope Display of S/N

AUTOCORRELATION OF
SIGNAL – TO – NOISE

RUN 3 LEG I
5000 YARDS
MAXIMUM LAG = 42 SEC

TOTAL SAMPLE IS 420 SECONDS

Figure 4-6 Typical DDP-24
Scope Display of Autocorrelation
of S/N



SPECTRUM OF S/N

RUN 2 LEG I
5000 YARDS

Figure 4-7 Typical DDP-24
Scope Display of Spectrum of S/N

The high- and low-frequency components of the total variance, as determined by autocorrelation analysis, were found to exhibit an interesting effect when examined as a function of range (Figure 4-8). It may be seen from the figure

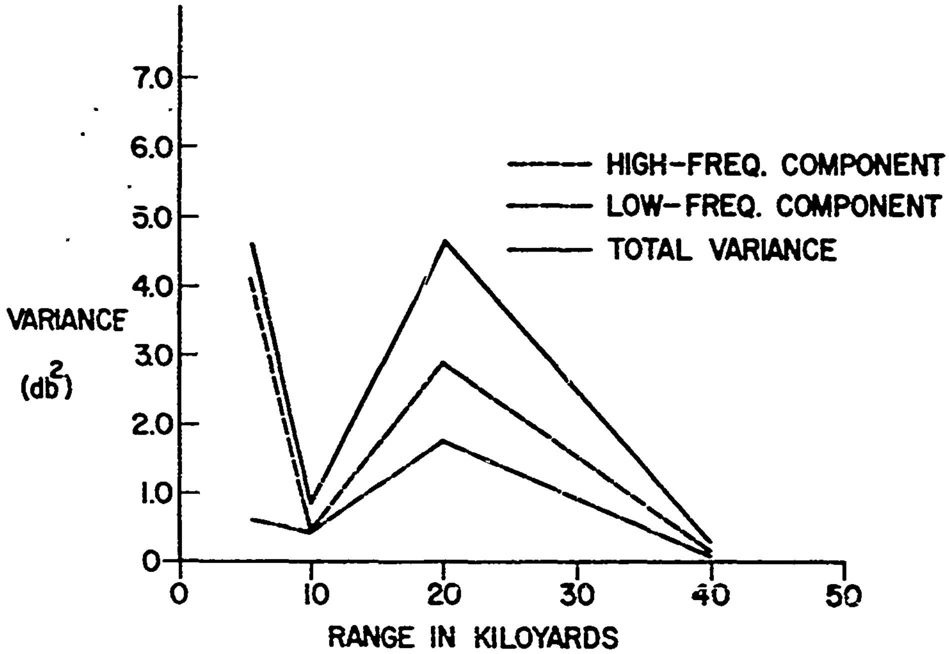


Figure 4-8 Variance of S/N vs. Range

that the two components of variance seem to be related through some sort of feedback loop. When one of these components decreases, the other decreases, and vice versa. This suggests that at least some of the "noise" (high-frequency component) is induced by the system itself and that a high signal variance seems to amplify the system variance. This effect should be studied in more detail, and could lead to an improved sonar capability.

The complete results of the autocorrelation analysis are given in Appendix B.

V

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE WORK

Although a detailed study of the area was made beforehand by examination of records of the Navy and the Hydrographic Office, it required the presence of the oceanographic sensors to delineate the conditions on a rough scale. The combination of the B.T.'s, SVP's, and IRT's determined some of the general characteristics of the area.

This survey, however, was far from sufficient to determine the fine structure of the oceanographic conditions in the area in terms of providing all of the data necessary for an absolute calibration of the tactical propagation models under test. The survey was sufficient to show that the inhomogenieties in the surface channel and the overall structure did exist, and that these were of sufficient magnitude to cause variances in the signal detected by the sonar system employed. These variances, moreover, affected the tactical operation of both the sonar system and the submarine.

The results of the acoustic experiment showed that the SUBIC at-sea ray trace was applicable to active signals as well as to passive signals in predicting average transmission loss terms. In addition, an internal wave ray trace model, programmed on a UNIVAC 1107 computer, explained some of the variance in the S/N as detected by the submarine sonar system. It is important to emphasize that these variances can exist even at ranges as close at 5000 yards and that they are highly dependent on both the overall shape of the SVP and on its spatial and temporal stability.

In order to more effectively utilize the existing sonar system, better and more frequent, and perhaps continuous, sampling of the environment is essential. This will enable accurate predictions of sonar conditions and facilitate passive ranging, either by D/E tracking (from deep convergence zone only), shadow zone (circle chart) tracking[4], or variance tracking (described below). One suggested method of sampling the environment is described in the following paragraph.

When the submarine arrives in its operating area, it should take a sound velocity profile from the surface to its full depth capability. Based upon this SVP, it chooses the best listening depth and cruises at this depth, taking continuous sound velocity measurements. When the velocity changes by a predetermined amount (ΔV), then a new SVP would be taken. The ΔV would be based upon the environmental history of the area, the time of year, the depth at which the submarine is operating, and possibly other factors. In this way, the submarine may obtain the most up-to-date picture of the environment without interfering with normal ship operations.

For the first time during a SUBIC at-sea test with the DDP-24 computer system, the D/E angle of the sonar system was monitored. Results of this test showed that the vertical beamwidth (13^{o}) of the BQS-6 sonar system was too wide to permit automatic D/E tracking for operation in the surface channel. It is suggested, therefore, that future sonar designs have provision for a narrow vertical beamwidth for tracking, as well as a wide one for search operations.

As a result of the PERMIT experiment, it appears that a passive ranging technique based upon the variance in the signal-to-noise ratio may be feasible. This technique would require an at-sea computer which would be utilized to predict the signal variance at different ranges, as described in Section III. The observed variance of an incoming signal could be measured at several different own-ship depths and compared with the prediction made for these depths. Ideally, there would only be one solution which satisfies all the necessary conditions. Even if this were not so, however, this process would yield additional information which, when combined with circle chart and D/E angle methods, will yield a unique range and depth solution. It is suggested that this procedure be tested on future at-sea experiments.

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APPENDIX A

COMPLETE ATF DATA

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Run 2 Leg 1

BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
8457.668	8Ø12.627	8Ø1Ø2.62	8Ø159.74	8Ø262.37	8Ø11.Ø66	8Ø4.448	-Ø2Ø.155
8457.8ØØ	812.6Ø1	8Ø1Ø2.59	8Ø159.81	8Ø262.41	8Ø11.169	-Ø1.957	-.396
8457.734	8Ø12.556	8Ø1Ø2.55	8Ø159.86	8Ø262.41	8Ø11.163	8Ø3.127	-Ø.593
8457.778	8Ø12.558	8Ø1Ø2.55	8Ø159.86	8Ø262.41	8Ø11.Ø23	8Ø1.935	-.461
8457.754	8Ø12.563	8Ø1Ø2.56	8Ø159.83	8Ø262.39	8Ø1Ø.773	-Ø.524	-Ø.615
8457.734	8Ø12.6Ø6	8Ø1Ø2.6Ø	8Ø159.8Ø	8Ø262.4[illegible]	8Ø1Ø.657	8Ø1.Ø1Ø	-.527
8457.69Ø	812.558	8Ø1Ø2.55	8Ø159.87	8Ø262.43	81Ø.7Ø6	8Ø6.6Ø6	-Ø4Ø.122
8457.6Ø3	8Ø12.395	8Ø1Ø2.39	8Ø16Ø.Ø6	8262.452	8Ø1Ø.815	8.Ø69	-Ø29.[illegible]
8457.515	8Ø12.32Ø	81Ø2.318	8Ø16Ø.13	8Ø262.45	8Ø1Ø.87Ø	8.17Ø	-141[illegible]
8Ø457.51	8Ø12.322	8Ø1Ø2.32	8Ø16Ø.11	8Ø262.43	8Ø1Ø.7Ø6	8ØØØØØ.Ø	-.701
8457.537	8Ø12.465	8Ø1Ø2.46	8Ø159.94	8Ø262.4Ø	8Ø1Ø.437	8.344	-Ø1.54Ø
8457.581	8Ø12.523	8Ø1Ø2.52	8Ø159.88	8Ø262.4Ø	8Ø1Ø.229	8Ø1.121	-Ø.615
8457.646	8Ø12.483	8Ø1Ø2.48	8159.961	8Ø262.44	8Ø1Ø.3Ø9	8Ø9.158	-.154
8457.559	8Ø12.381	8Ø1Ø2.37	8Ø16Ø.Ø7	8Ø262.45	81Ø.48Ø	84.Ø42	-Ø259.91
8457.625	8Ø12.366	8Ø1Ø2.36	8Ø16Ø.Ø8	8Ø262.44	8Ø1Ø.553	-Ø1.199	-Ø2Ø.259
8457.559	8Ø12.419	8Ø1Ø2.41	8Ø159.99	8Ø262.41	8Ø1Ø.431	8Ø3.784	-Ø.659
8457.6Ø3	8Ø12.494	8Ø1Ø2.49	8Ø159.92	8Ø262.41	8Ø1Ø.1Ø1	-.341	-.396
8457.537	8Ø12.457	8Ø1Ø2.45	8Ø159.98	8Ø262.44	8Ø9.979	8.16Ø	-.374
8457.427	8Ø12.277	8Ø1Ø2.27	8Ø16Ø.2Ø	8Ø262.48	81Ø.Ø1Ø	82.377	-Ø6Ø.Ø95
8457.251	8Ø12.1Ø6	8Ø1Ø2.1Ø	8Ø16Ø.4Ø	8Ø262.5Ø	8Ø1Ø.199	-.Ø55	-.396
8457.Ø97	8Ø11.981	8Ø1Ø1.98	8Ø16Ø.52	8Ø262.51	81Ø.284	8Ø2.479	-Ø.769
8457.141	8Ø11.948	8Ø1Ø1.94	8Ø16Ø.55	8Ø262.49	8Ø1Ø.Ø4Ø	-2.574	-Ø.615
8457.Ø53	8Ø11.942	8Ø1Ø1.94	8Ø16Ø.54	8Ø262.49	8Ø9.747	8.225	-.374
8457.Ø53	8Ø11.954	8Ø1Ø1.95	8Ø16Ø.53	8Ø262.49	8Ø9.6Ø1	8Ø9.772	-Ø4Ø.144
8457.Ø53	8Ø11.896	8Ø1Ø1.89	8Ø16Ø.62	8Ø262.52	8Ø9.729	8Ø2.Ø61	-.374
8456.943	8Ø11.771	8Ø1Ø1.76	8Ø16Ø.75	8Ø262.52	8Ø9.912	-Ø1.37Ø	-.417
8456.833	8Ø11.693	8Ø1Ø1.69	8Ø16Ø.82	8Ø262.51	8Ø9.875	-Ø.517	-.439
8456.724	8Ø11.672	8Ø1Ø1.67	816Ø.821	8Ø262.49	8Ø9.564	8Ø1.712	-.417
8Ø456.76	8Ø11.755	8Ø1Ø1.75	8Ø16Ø.73	8262.485	8Ø9.32Ø	8ØØØØØ.ØØ	-.33Ø
8456.768	8Ø11.786	8Ø91.785	8Ø16Ø.71	8Ø252.5Ø	8Ø9.332	8.181	-.461
8456.724	8Ø11.642	8Ø1Ø1.64	816Ø.884	8Ø262.52	8Ø9.497	-Ø.914	-.33Ø
8456.548	8Ø11.451	8Ø1Ø1.45	8161.Ø6Ø	8262.51Ø	89.619	-Ø.944	-Ø.615
8456.46Ø	811.374	8Ø1Ø1.37	8Ø161.11	8Ø262.48	8Ø9.418	8Ø4.653	-Ø259.87
8456.438	8Ø11.373	8Ø1Ø1.37	8Ø161.1Ø	8Ø262.47	8Ø9.253	8Ø6.288	-Ø8Ø.332
8456.46Ø	811.451	8Ø1Ø1.45	8161.Ø21	8Ø262.47	8Ø9.131	8Ø2.7Ø7	-Ø.7Ø3
8456.526	8Ø11.519	8Ø1Ø1.51	8Ø16Ø.96	8Ø262.48	8Ø9.113	-Ø1.852	-Ø.571
8456.438	8Ø11.552	8Ø91.552	8Ø16Ø.94	8Ø252.49	8Ø9.229	-Ø.651	-Ø.725
8456.5Ø4	8Ø11.561	8Ø91.56Ø	816Ø.923	8Ø252.48	8Ø9.222	8.348	-Ø2Ø.281
8456.614	8Ø11.653	8Ø91.653	8Ø16Ø.82	8Ø252.48	8Ø9.131	8Ø5.417	-Ø4Ø.166
8456.768	8Ø11.85Ø	891.848	8Ø16Ø.63	8Ø252.47	8Ø8.976	8Ø9.274	-.242
8457.Ø53	8Ø12.Ø82	8Ø92.Ø82	8Ø16Ø.38	8Ø252.47	8Ø8.936	8.441	-.242
8457.141	8Ø12.136	8Ø92.183	8Ø16Ø.28	8Ø252.47	8Ø8.9Ø5	8Ø1.536	-.264
8457.2Ø7	8Ø12.195	8Ø1Ø2.19	8Ø16Ø.27	8Ø262.47	8Ø8.8Ø1	8.Ø23	-.154
8457.251	8Ø12.265	8Ø92.263	8Ø16Ø.17	8Ø252.44	[illegible].722	8Ø9.553	-.198

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8457.471	8012.436	8092.475	80159.93	80252.37	806.643	-.049	-.226
8457.712	8012.733	80102.73	80159.62	80262.32	808.569	-0.658	-.264
8457.366	8012.813	80102.81	80159.52	8262.312	808.527	-.425	-.220
8457.833	812.827	8092.826	80159.49	80252.32	88.484	80.517	-.330
8457.830	812.825	8092.823	80159.50	80252.35	808.362	8.213	-.198
8457.913	812.904	80102.96	80159.37	8262.274	808.282	802.646	-020.105
8458.133	813.062	80103.06	8159.170	8262.233	88.282	-0.322	-020.193
8458.174	8013.123	80103.12	80159.10	80262.22	808.282	803.464	-040.130
8458.106	8013.132	80103.13	80159.00	80262.23	88.154	-02.253	-.396
8458.103	8013.132	8093.131	80159.10	80252.25	808.037	-.406	-0.725
8458.152	8013.154	8093.153	80159.05	80252.21	87.971	802.154	-0.747
8458.213	8013.240	803.238	80158.96	80252.19	807.953	803.583	-0.659
8458.218	8013.250	803.249	80158.95	80252.20	807.947	802.457	-0.747
8458.284	8013.218	80103.21	80158.99	80262.21	807.928	-01.182	-0.659
8458.240	813.214	80103.21	80158.99	[illegible]	807.837	801.548	-0.637
8458.550	813.293	80103.29	80158.87	80262.17	807.666	801.896	-.637
8458.284	8013.375	8093.373	80158.78	80252.15	807.593	804.545	-0.681
8458.416	8013.431	8093.430	8158.717	80252.14	807.544	-05.057	-0.742
8458.394	8013.423	8093.422	80158.74	80252.16	807.611	-05.175	-0.681
8458.416	8013.339	80103.33	80158.64	80262.18	807.648	-01.422	-0.681
8458.334	8013.339	80103.38	80158.75	80262.14	807.458	80.593	-0.659
8458.591	8013.643	8093.642	80158.44	80252.28	807.190	-2.389	-0.769
8458.701	8013.796	8093.796	80158.28	80252.08	807.117	-02.468	-0.791
8458.833	8013.827	80103.82	80158.26	80262.09	807.288	-04.775	-0.725
8458.745	8013.773	8093.771	80158.33	80252.10	807.385	-02.158	-0.813
8458.855	8013.840	8103.840	8158.706	80262.04	807.184	80.586	-0.615
8459.097	8014.203	8094.202	80157.80	80252.00	806.952	80.615	-0.791
8459.316	8014.434	8094.433	80157.61	80252.04	806.879	-04.397	-0.791
8459.294	8014.462	8094.460	8157.610	8252.070	87.013	-06.220	-.769
8459.294	8014.426	8094.425	80157.63	80252.05	807.050	-2.787	-0.791
8459.332	8014.589	8094.587	80157.40	80251.99	806.915	8.462	-0.769
8459.602	8014.851	8094.850	8157.173	80252.02	806.763	-02.225	-0.769
8459.630	814.979	8094.977	80157.09	80252.06	806.708	-06.849	-0.857
8459.660	8014.999	8094.999	80157.08	80252.08	806.750	-.186	-0.857
8459.690	815.021	8095.021	80157.08	80252.10	806.641	-04.409	-0.923
8459.668	8015.087	8095.087	80157.04	80252.13	806.580	-2.574	-0.857
8459.624	8015.001	8094.999	80157.18	80252.18	806.604	-05.441	-0.901
8459.404	8014.536	8094.535	80157.56	80252.10	806.677	-03.027	-0.813
8459.207	8014.203	80104.20	80157.87	80262.07	806.592	-06.768	-0.637
8459.097	8014.109	8094.109	80157.97	8252.078	806.427	-04.345	-0.769
8458.987	8013.988	8093.988	80158.11	80252.10	86.299	-02.103	-0.791
8458.701	8013.657	80103.65	80158.50	80262.16	806.348	-07.281	-0.637
8458.284	8013.279	80103.27	80158.96	80262.24	806.482	-04.510	-.725
8458.020	813.039	8093.038	80159.25	80252.29	806.458	-07.350	-.571
8457.866	8012.900	892.898	80159.43	80252.32	806.354	-06.193	-0.703
8457.690	812.715	8092.714	80159.67	8252.383	806.329	-.066	-0.593
8457.383	8012.496	8092.494	80159.93	80252.43	86.268	-04.576	-0.593
8457.251	8012.334	8092.332	80160.12	80252.45	806.244	-07.350	-.571
8457.075	8012.229	8092.227	80160.24	80252.47	806.219	-07.396	-0.659
8456.921	8012.121	8092.120	8160.373	80252.49	806.213	-04.872	-0.703

&456.312	&011.950	&91.950	&160.560	&252.510	&6.152	-02.113	-0.549
&456.592	&011.779	&091.777	&0160.73	&0252.51	&06.128	-01.411	-0.637
&456.482	&011.713	&091.711	&0160.78	&0252.49	&06.018	-06.329	-0.615
&456.543	&011.714	&091.714	&0160.77	&0252.49	&06.018	-07.191	-0.615
&456.438	&011.700	&91.697	&0160.79	&0252.49	&6.042	-02.048	-0.703
&456.328	&011.535	&091.533	&0160.96	&0252.50	&06.018	-0.837	-0.615
&456.284	&011.456	&091.456	&0161.03	&0252.48	&05.896	-03.336	-0.593
&456.262	&011.483	&091.480	&160.930	&252.460	&5.933	-07.431	-0.593
&456.350	&11.674	&091.673	&0160.78	&0252.46	&5.914	-05.854	-0.571
&456.526	&011.851	&091.851	&0160.62	&252.471	&05.872	-06.167	-0.637
&456.724	&011.987	&091.986	&0160.48	&0252.46	&05.774	&.367	-0.527
&456.790	&12.062	&092.060	&160.400	&0252.46	&05.756	-03.354	-0.549
&456.763	&012.117	&092.115	&0160.34	&252.455	&05.774	-06.021	-0.681
&456.987	&012.283	&092.282	&0160.14	&0252.42	&05.707	-05.885	-0.593
&457.229	&012.508	&092.508	&0159.86	&0252.37	&05.652	-04.368	-0.615
&457.295	&012.614	&092.612	&0159.74	&.252.35	&05.652	-03.683	-0.593
&457.415	&012.626	&092.626	&0159.73	&252.356	&05.603	-02.044	-0.835
&457.333	&012.648	&092.648	&0159.70	&252.340	&05.579	-06.912	-0.923
&457.559	&012.793	&092.791	&0159.50	&0252.29	&05.487	-06.779	-01.033
&457.712	&012.875	&092.873	&0159.42	&0252.29	&05.615	-06.901	-01.077
&457.712	&012.879	&092.878	&0159.41	&0252.29	&05.597	-02.985	-01.033
&457.734	&012.889	&092.889	&0159.39	&0252.28	&05.475	-06.467	-01.033
&457.734	&012.933	&092.933	&0159.33	&0252.26	&05.341	-05.078	-01.099
&457.844	&012.939	&092.939	&0159.32	&0252.26	&05.377	-05.412	-01.011
&457.822	&012.991	&092.991	&0159.26	&0252.25	&05.457	-04.077	-01.055
&457.844	&013.039	&093.038	&0159.21	&0252.25	&05.444	-01.263	-01.011
&457.844	&013.030	&93.029	&0159.23	&0252.26	&05.316	-07.114	-0.967
&457.822	&012.924	&092.922	&0159.37	&0252.29	&05.298	-06.880	-1.055
&457.844	&012.886	&092.884	&0159.41	&0252.29	&05.267	-07.443	-0.989
&457.888	&012.891	&092.889	&0159.39	&0252.28	&05.212	-03.532	-01.011
&457.822	&012.957	&092.955	&0159.30	&0252.25	&05.273	-04.299	-01.033
&457.998	&012.938	&0102.93	&0159.35	&0262.28	&05.237	-01.617	-0.945
&457.800	&12.836	&092.834	&0159.48	&0252.31	&05.182	-07.466	-01.011
&457.800	&12.801	&092.799	&0159.51	&0252.31	&05.151	-07.419	-0.967
&457.756	&012.800	&92.799	&0159.51	&0252.31	&05.182	-03.010	-.989
&457.800	&12.822	&092.821	&0159.47	&0252.29	&05.261	-0.790	-.923
&457.822	&012.833	&092.832	&0159.48	&252.312	&05.255	-07.147	-0.989
&457.712	&012.795	&092.793	&0159.52	&0252.31	&05.066	-07.490	-.989
&457.734	&012.789	&092.788	&0159.52	&0252.30	&04.993	-05.700	-01.055
&457.690	&12.817	&092.815	&0159.47	&0232.29	&5.084	-05.099	-01.077
&457.734	&012.841	&092.840	&159.450	&252.290	&5.249	-05.231	-01.077
&457.712	&012.800	&92.799	&0159.52	&0252.32	&5.188	-06.819	-01.033
&457.559	&012.720	&92.719	&0159.60	&0252.32	&04.974	-05.608	-01.133
&457.645	&012.715	&092.714	&0159.60	&0252.31	&04.919	-06.282	-0.967
&457.646	&012.815	&092.812	&0159.46	&0252.28	&04.980	-1.881	-01.011
&457.690	&12.883	&092.881	&0159.39	&0252.27	&05.084	-04.924	-01.428
&457.668	&012.886	&092.884	&0159.38	&0252.26	&05.054	-07.431	-01.187
&457.734	&012.888	&092.887	&0159.38	&0252.26	&04.858	-05.765	-01.187
&457.690	&12.893	&092.892	&0159.38	&0252.27	&04.858	-05.339	-01.560

6457.600	612.980	692.980	6159.238	60252.20	605.072	-07.063	-01.516
457.322	6012.935	6092.933	60159.52	60252.25	605.005	-03.021	-01.472
57.778	6012.981	6092.980	6159.285	60252.26	604.895	-04.426	-01.516
6457.844	6013.011	6093.010	6159.241	60252.25	604.749	-07.292	-01.560
6457.910	613.066	6093.065	60159.17	6252.255	604.810	-7.773	-01.560
6457.976	6013.111	6093.109	60159.11	60252.22	604.94	-06.943	-01.516
6458.064	6013.152	6093.150	6159.066	60252.21	604.92	-05.686	-01.516
6458.042	6013.195	6093.194	60159.01	60252.21	604.797	-07.941	-01.538
6458.020	613.205	6093.203	60159.00	6252.202	604.775	-06.808	-01.516
6457.998	6013.207	6093.205	60159.00	6252.205	604.810	-6.008	-01.560
6458.064	6013.181	6093.181	60159.04	60252.22	604.834	-07.281	-01.530
6457.954	6013.137	6093.137	60159.09	60252.23	604.816	-04.911	-01.648
6457.998	6013.126	6093.126	60159.10	60252.[illegible]2	604.773	-06.021	-01.533
6457.954	6013.127	6093.126	60159.10	60252.22	604.736	-05.577	-01.538
6457.954	6013.053	6093.051	60159.21	60252.26	604.797	-07.931	-01.472
6457.800	612.933	6092.931	60159.35	60252.23	604.919	-07.408	-01.560
6457.756	6012.892	6092.839	60159.38	60252.27	604.775	-01.000	-1.494
6457.756	6012.891	6092.889	60159.37	60252.36	604.6[illegible]2	-05.773	-01.406
6457.646	6012.889	6092.889	60159.39	60252.[illegible]	604.669	-07.006	-01.648
6457.559	6012.775	6092.774	60159.56	60252.33	604.395	-07.562	-01.516
6457.537	6012.706	6092.705	60159.63	60252.34	604.339	-3.831	-01.538
6457.471	6012.704	6092.703	60159.63	60252.33	604.796	-113.619	-01.560
6457.493	6012.731	6092.700	6159.642	60252.34	604.638	-05.646	-01.472
6457.361	6012.632	6092.631	60159.74	60252.37	604.687	-05.638	-01.560
6457.471	6012.612	6092.609	60159.76	60252.37	604.716	-02.683	-01.494
6457.435	6012.612	6092.609	60159.75	60252.36	604.779	-07.747	-01.472
6457.361	6012.610	692.609	60159.75	60252.36	604.736	-05.955	-01.560
6457.383	6012.592	6092.590	6159.788	60252.37	604.565	-07.961	-01.516
6457.339	6012.582	6092.582	60159.79	60252.37	604.570	-6.238	-01.494
6457.339	6012.582	6092.582	60159.79	60252.37	604.633	-07.538	-01.502
6457.273	6012.578	6092.576	60159.80	60252.37	604.779	-07.598	-01.274
6457.330	6012.551	6092.549	60159.82	60252.37	604.687	-07.760	-1.362
6457.317	6012.543	6092.543	60159.84	60252.39	604.498	-05.547	-01.538
6457.295	6012.528	6092.527	60159.86	60252.39	604.462	-07.811	-01.42[illegible]
6457.339	6012.526	6092.524	60159.86	60252.39	604.675	-03.527	-01.428
6457.273	6012.525	6092.524	60159.86	60252.38	604.718	-06.029	-01.406
6457.273	6012.505	6092.505	60159.90	60252.40	604.529	-07.941	-01.362
6457.141	6012.410	692.409	60160.02	60252.43	64.400	-7.766	-1.450
6457.141	6012.389	6092.387	60160.03	60252.42	604.565	-01.218	-01.406
6457.185	6012.429	6092.428	60159.96	60252.39	604.645	-07.941	-01.406
6457.185	6012.473	6092.472	60159.93	60252.40	604.590	-7.914	-01.472
6457.207	6012.468	6092.466	60159.94	60252.41	604.517	-05.757	-01.450
6457.185	6012.448	6092.447	60159.96	60252.41	604.504	-03.062	-01.384
6457.207	6012.451	6092.456	6159.964	60252.41	604.602	-03.040	-01.472
6457.141	6012.449	6092.447	60159.96	60252.41	604.565	-05.717	-01.494
6457.251	6012.465	6092.464	60159.93	60252.39	604.425	-07.623	-01.384
6457.119	6012.486	6092.486	60159.90	60252.39	604.456	-04.750	-1.538
6457.141	6012.484	6092.483	60159.91	60252.39	604.584	-07.850	-1.406
6457.237	6012.485	6092.483	60159.92	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-07.722	-01.450
6457.185	6012.527	6092.527	60159.86	60252.38	604.431	-07.623	-01.406
6457.185	6012.500	6092.508	60159.90	60252.40	604.523	-04.576	-01.362
6457.229	6012.477	6092.477	60159.94	60252.42	604.602	-03.819	-01.450
6457.119	6012.475	6092.475	60159.92	60252.40	604.504	-011.045	-01.472
6457.207	6012.510	692.510	6159.879	60252.38	604.443	-05.887	-01.340
6457.251	6012.523	6092.521	60159.87	60252.39	604.449	-04.077	-01.362
6457.185	6012.538	6092.538	60159.84	60252.38	604.517	-07.466	-01.428
6457.229	6012.568	6092.568	60159.81	60252.38	604.529	-06.698	-01.406
6457.207	6012.568	6092.568	60159.81	60252.30	604.431	-06.608	-01.472
6457.295	6012.581	6092.579	60159.79	60252.37	604.395	-08.048	-01.428
6457.273	6012.645	6092.642	60159.72	60252.36	604.510	-7.793	-01.472
6457.361	6012.650	692.648	60159.72	60252.37	604.553	-07.640	-01.340
6457.361	6012.604	6092.604	60159.79	60252.40	604.517	-05.464	-01.428
6457.383	6012.585	6092.584	60159.81	60252.39	604.413	-07.538	-01.420
6457.339	6012.586	6092.584	60159.81	60252.39	604.456	-04.625	-01.494
6457.273	6012.587	6092.587	60159.81	6252.397	604.535	-07.850	-1.494
6457.295	6012.584	6092.582	60159.81	60252.39	604.517	-08.199	-01.692
6457.273	6012.543	6092.543	60159.85	60252.41	604.462	-07.201	-01.494
6457.317	6012.555	6092.554	60159.83	60252.38	604.449	-07.550	-1.318
6457.229	6012.644	6092.642	60159.72	60252.36	604.431	-07.075	-01.868
6457.361	6012.693	6092.692	60159.68	60252.37	604.468	-06.562	-01.934
6457.251	6012.698	6092.697	60159.67	60252.37	604.529	-06.411	-01.368
6457.427	6012.736	6092.736	60159.60	60252.34	604.449	-07.315	-01.780
6457.339	6012.794	6092.793	60159.54	60252.35	604.407	-07.837	-01.846
6457.427	6012.799	6092.799	60159.54	60252.34	604.425	-07.419	-01.012
6457.361	6012.759	6092.758	60159.61	60252.37	604.492	-08.089	-01.824
6457.383	6012.752	6092.752	60159.62	60252.37	604.456	-07.350	-1.934
6457.427	6012.813	6092.812	60159.50	60252.32	64.309	-06.193	-01.802
6457.515	6012.874	6092.873	60159.45	60252.32	604.309	-03.306	-01.736
6457.493	6012.815	6092.812	60159.53	60252.34	604.413	-08.214	-01.758
6457.449	6012.761	6092.760	6159.604	60252.36	604.523	-05.092	-01.846
6457.493	6012.787	6092.785	60159.54	60252.32	604.401	-05.662	-01.802
6457.581	6012.866	6092.865	60159.49	60252.32	64.291	-07.610	-1.670
6457.603	6012.876	6092.876	60159.45	60252.32	604.352	-00.116	-01.758
6457.559	6012.841	6092.840	6159.497	60252.33	604.456	-07.722	-01.700
6457.515	6012.820	692.818	60159.51	60252.33	604.474	-05.037	-01.780
6457.625	6012.819	6092.818	60159.51	60252.33	604.364	-05.239	-01.700
6457.581	6012.828	6092.826	60159.52	60252.34	604.352	-07.747	-01.780
6457.493	6012.829	6092.829	60159.52	60252.35	604.431	-07.914	-01.890
6457.493	6012.811	6092.810	6159.538	60252.34	604.449	-01.497	-01.846
6457.493	6012.787	6092.785	60159.56	6252.345	604.352	-07.914	-01.824
6457.493	6012.739	6092.738	60159.62	60252.36	604.382	-05.733	-01.824
6457.405	6012.709	6092.708	60159.67	60252.38	604.437	-07.236	-01.868
6457.361	6012.708	6092.705	60159.65	60252.35	604.425	-04.898	-01.802
6457.471	6012.806	6092.804	60159.51	60252.32	64.321	-04.708	-01.736
6457.471	6012.836	6092.834	60159.40	60252.32	604.303	-06.383	-01.700
6457.449	6012.839	6092.837	60159.49	60252.32	604.443	-05.031	-01.890
6457.405	6012.831	6092.829	60159.50	60252.33	604.401	-09.203	-01.890
6457.405	6012.850	692.848	60159.46	60252.31	604.303	-04.872	-01.024
6457.493	6012.896	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8457.471	8012.810	892.810	8159.541	80252.35	84.425	-05.773	-02.747
8457.495	8 12.760	892.758	8159.50	80252.33	804.425	-05.600	-5.008
8457.449	8012.758	8092.758	8159.57	80252.33	804.291	-04.997	-04.966
8457.427	8012.720	892.719	8159.64	80252.36	804.303	-07.672	-04.938
8457.229	8012.614	8092.612	8159.77	80252.38	804.449	-06.167	-05.010
8457.317	8012.559	8092.557	8159.82	80252.38	804.493	-07.994	-04.922
8457.251	8012.545	8092.543	8159.84	80252.38	804.388	-07.526	-04.834
8457.251	8012.543	8092.541	8159.84	80252.38	804.260	-5.154	-04.078
8457.207	8012.542	8092.541	8159.84	8252.381	804.291	-010.757	-04.922
8457.229	8012.551	8092.549	8159.82	80252.37	804.462	-09.854	-04.922
8457.185	8012.485	8092.483	8159.93	80252.42	804.559	-05.210	-5.010
8457.009	8012.377	8092.376	8160.06	80252.44	804.376	-010.512	-04.922
8457.053	8012.353	8092.351	8160.09	80252.44	804.236	-07.928	-04.900
8457.097	8012.426	8092.425	8159.97	80252.40	84.327	-04.607	-04.870
8457.141	8012.488	8092.480	8159.91	80252.40	804.510	-4.833	-04.878
8457.163	8012.402	8092.401	8160.04	80252.44	804.401	-07.837	-04.878
8457.097	8012.346	8092.346	8160.09	80252.44	804.242	-07.327	-04.900
8456.965	8012.344	8092.343	8160.09	80252.43	804.327	-07.672	-04.966
8457.097	8012.348	8092.346	8160.03	80252.42	804.406	-04.374	-04.900
8457.009	8012.348	8092.346	8160.08	80252.43	804.419	-08.102	-04.944
8457.075	8012.427	8092.425	8159.97	80252.40	804.242	-07.598	-04.900
8457.119	8012.533	8092.532	8159.86	80252.39	804.211	-05.397	-04.856
8457.119	8012.542	8092.541	8159.87	80252.41	804.425	-07.747	-04.724
8457.207	8012.483	8092.483	8159.94	80252.42	804.584	-08.256	-03.010
8457.185	8012.498	8092.497	8159.90	80252.40	84.462	-07.648	-03.136
8457.273	8012.633	8092.631	8159.73	80252.36	804.236	-07.315	-04.263
8457.295	8012.702	8092.700	8159.656	80252.35	804.260	-5.065	-04.351
8457.295	8012.706	8092.705	8159.64	80252.35	84.456	-07.880	-04.031
8457.317	8012.707	8092.705	8159.64	80252.35	804.578	-05.930	-03.955
8457.339	8012.708	8092.705	8159.65	80252.35	804.468	-05.639	-03.823
8457.339	8012.712	8092.711	8159.64	80252.35	804.236	-05.368	-03.823
8457.449	8012.302	8092.802	8159.52	80252.32	804.266	-07.514	-03.933
8457.625	8012.869	8092.867	8159.43	80252.30	804.468	-07.914	-03.801
8457.581	8012.923	8092.922	8159.37	80252.30	804.517	-07.697	-03.955
8457.663	8012.932	8092.931	8159.36	80252.29	804.303	-06.649	-03.823
8457.581	8012.876	8092.876	8159.45	8252.326	804.236	-04.612	[illegible]
8457.559	8012.853	8092.851	8159.46	80252.31	804.321	-07.408	-03.845
8457.603	8012.948	8092.947	8159.52	80252.27	804.449	-05.134	-03.845
8457.625	8012.983	8092.983	8159.28	80252.26	804.419	-07.889	-03.823
8457.646	8012.971	8092.969	8159.32	80252.20	84.254	-05.310	-3.867
8457.625	8012.938	8092.936	8159.35	80252.28	804.193	-05.562	[illegible]
8457.690	812.935	8092.933	8159.35	80252.29	84.352	-00.459	[illegible]
8457.663	8012.878	8092.878	8159.44	80252.32	804.504	-06.319	-03.757
8457.581	8012.815	8092.812	8159.51	8252.323	804.456	-06.320	[illegible]
8457.581	8012.319	8092.818	8159.40	80252.33	804.243	-05.317	-03.845
8457.663	8012.982	8092.980	8159.271	80252.25	804.181	-05.274	-03.911
8457.322	8013.101	8093.098	8159.13	80252.23	84.297	-08.062	-03.895
8457.300	813.112	8093.112	8159.11	80252.23	84.449	-02.054	-03.885
8457.300	813.119	8093.117	8159.10	80252.22	804.318	-04.510	-3.911
8457.910	813.198	893.189	8159.01	80252.20	804.272	-06.932	-03.911
[illegible]	813.278	893.268	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

8453.042	8013.570	893.367	80158.78	80252.15	804.342	-4.023	-03.977
8458.196	8013.467	8093.466	80158.67	80252.14	804.395	-07.236	-03.911
8458.218	8013.490	893.488	80158.65	80252.13	804.370	-5.390	-3.955
8458.174	8013.394	8093.392	80158.77	80252.16	804.303	-03.152	-03.889
8458.064	8013.248	8093.246	80158.90	80252.14	804.297	-07.180	-3.889
8458.020	813.207	8093.205	80158.94	80252.14	804.308	-01.680	-3.933
8457.998	8013.204	8093.203	80158.94	80252.14	804.395	-07.081	-03.933
8458.064	8013.203	8093.203	80158.95	8252.153	804.327	-07.623	-03.867
8457.954	8013.076	8093.073	80159.12	80252.19	804.285	-02.256	-03.757
8457.712	8012.894	8092.892	80159.36	80252.26	84.346	-05.970	-3.823
8457.090	812.789	8092.788	80159.49	80252.28	804.419	-09.891	-03.867
8457.553	8012.750	892.749	80159.55	80252.30	804.401	-02.856	-03.867
8457.471	8012.653	8092.650	8159.689	80252.33	804.327	-06.620	-3.845
8457.339	8012.523	8092.521	80159.84	8252.361	804.340	-5.231	-03.801
8457.251	8012.444	8092.442	80159.93	80252.37	804.456	-04.540	-3.823
8457.229	8012.401	8092.401	80159.98	8252.381	804.504	-06.167	-03.757
8457.163	8012.389	8092.387	80159.99	80252.38	804.321	-04.625	-03.757
8457.075	8012.351	8092.351	80160.04	80252.40	84.285	-05.024	-03.911
8457.075	8012.283	8092.282	80160.13	80252.41	804.401	-08.075	-03.757
8456.943	8012.235	8092.233	80160.18	80252.41	804.486	-06.132	-03.823
8456.921	8012.234	8092.233	80160.15	80252.39	804.346	-01.718	-03.845
8456.965	8012.330	892.329	80160.04	80252.37	804.242	-05.870	-3.867
8456.965	8012.357	8092.357	80160.01	80252.37	804.333	-08.242	-03.779
8456.943	8012.358	8092.357	80160.02	80252.37	804.456	-01.077	-03.845
8456.987	8012.366	8092.365	80160.00	80252.37	804.462	-03.327	-03.889
8457.141	8012.449	8092.447	80159.91	80252.36	804.376	-06.337	-03.933
8457.251	8012.529	8092.527	80159.81	80252.34	804.303	-02.621	-03.889
8457.339	8012.643	8092.642	80159.67	80252.31	804.272	-05.887	-03.867
8457.427	8012.727	8092.725	80159.57	80252.29	804.370	-6.080	-3.845
8457.493	8012.770	892.769	80159.51	80252.28	804.480	-8.430	-3.889
8457.581	8012.815	8092.812	80159.45	80252.26	804.413	-07.247	-03.867
8457.581	8012.872	8092.870	8159.373	80252.24	804.297	-02.092	-03.867
8457.712	8012.985	8092.983	80159.22	80252.20	804.248	-06.054	-03.889
8457.954	8013.174	8093.172	80159.03	80252.20	804.346	-05.765	-03.911
8458.020	813.264	8093.263	80158.93	80252.19	804.431	-01.069	-03.889
8457.976	8013.272	8093.271	80158.93	80252.20	804.352	-08.048	-03.955
8457.998	8013.260	893.257	80158.95	80252.21	804.291	-06.420	-3.867
8457.998	8013.286	8093.285	80158.90	80252.19	804.382	-01.807	-03.933
8458.086	8013.368	8093.367	80158.80	80252.16	804.425	-07.981	-03.999
8458.064	8013.417	8093.417	80158.73	80252.15	804.327	-08.075	-03.955
8458.218	8013.517	8093.516	80158.61	80252.12	804.266	-01.058	-03.933
8458.284	8013.582	8093.582	80158.53	80252.12	84.382	-06.029	-04.043
8458.284	8013.586	8093.584	80158.53	80252.11	804.437	-08.242	-03.911
8458.328	8013.586	8093.584	80158.53	80252.11	804.346	-01.602	-03.955
8453.306	8013.607	8093.606	80158.51	80252.11	804.333	-07.338	-03.889

&456.536	&Ø13.563	&ØØ3.562	&Ø158.58	&Ø252.15	&4.352	-Ø4.Ø23	-Ø3.955
&458.328	&Ø13.489	&ØØ3.488	&Ø158.66	&Ø252.15	&4.285	-Ø2.852	-Ø3.911
&458.234	&Ø13.427	&ØØ3.425	&Ø158.74	&Ø252.16	&Ø4.34Ø	-7.863	-Ø3.911
&458.152	&Ø13.317	&ØØ3.315	&Ø158.86	&.252.17	&Ø4.449	-Ø7.Ø6Ø	-3.889
&457.976	&Ø13.159	&ØØ3.159	&Ø159.Ø1	&.252.16	&Ø4.388	&Ø.778	-Ø3.955
&457.91Ø	&13.Ø52	&ØØ3.Ø51	&Ø159.15	&.252.2Ø	&Ø4.346	-Ø5.554	-Ø3.889
&457.8ØØ	&12.98Ø	&92.98Ø	&159.252	&.252.25	&Ø4.3Ø9	-Ø7.672	-Ø3.889
&457.734	&Ø12.943	&Ø92.942	&Ø159.28	&252.221	&Ø4.327	-.3ØØ	-3.933
&457.712	&Ø12.941	&Ø92.939	&Ø159.27	&Ø252.21	&Ø4.437	-Ø7.538	-Ø3.911
&457.756	&Ø12.9Ø8	&Ø92.9Ø6	&Ø159.35	&Ø252.26	&Ø4.468	-Ø3.532	-Ø3.889
&457.559	&Ø12.768	&Ø92.766	&Ø159.53	&Ø252.3Ø	&Ø4.37Ø	-1.855	-Ø3.8Ø1
&457.383	&Ø12.698	&Ø92.697	&Ø159.61	&Ø252.3Ø	&Ø4.266	-Ø7.562	-Ø3.955
&457.471	&Ø12.696	&Ø92.694	&Ø159.61	&Ø252.3Ø	&Ø4.333	-Ø5.494	-Ø3.845
&457.383	&Ø12.69Ø	&92.689	&Ø159.62	&252.3Ø9	&Ø4.51Ø	-1.187	-Ø3.933
&457.317	&Ø12.6Ø9	&Ø92.6Ø9	&Ø159.74	&Ø252.35	&Ø4.517	-Ø5.ØØ5	-Ø3.889
&457.273	&Ø12.526	&Ø92.524	&Ø159.82	&Ø252.35	&4.321	-Ø7.71Ø	-3.889
&457.295	&Ø12.5Ø9	&Ø92.5Ø8	&Ø159.84	&252.343	&Ø4.315	-Ø5.Ø65	-Ø3.867
&457.273	&Ø12.495	&Ø92.494	&Ø159.86	&Ø252.36	&Ø4.395	-Ø2.6Ø9	-Ø3.845
&457.141	&Ø12.411	&Ø92.4Ø9	&Ø159.98	&Ø252.39	&Ø4.474	-Ø4.644	-Ø3.889
&457.Ø53	&Ø12.321	&Ø92.318	&Ø16Ø.Ø8	&Ø252.4Ø	&Ø4.425	-Ø6.22Ø	-3.823
&456.987	&Ø12.298	&Ø92.296	&Ø16Ø.1Ø	&Ø252.4Ø	&Ø4.3Ø9	-Ø.693	-Ø3.867
&457.Ø59	&Ø12.297	&Ø92.296	&Ø16Ø.11	&Ø252.41	&Ø4.199	-Ø6.88Ø	-3.779
&456.855	&Ø12.2Ø2	&Ø92.2ØØ	&16Ø.236	&Ø252.43	&Ø4.24Ø	-6.383	-Ø3.823
&456.768	&Ø12.111	&Ø92.1Ø9	&Ø16Ø.33	&Ø252.44	&Ø4.449	&Ø1.235	-Ø3.823
&456.79Ø	&12.1Ø1	&Ø92.Ø98	&Ø16Ø.34	&252.438	&Ø4.425	-Ø.894	-Ø3.77Ø
&456.724	&Ø12.Ø97	&Ø92.Ø96	&Ø16Ø.33	&Ø252.43	&Ø4.297	-Ø7.914	-Ø3.823
&456.812	&Ø12.Ø99	&Ø92.Ø98	&Ø16Ø.34	&252.438	&Ø4.3Ø9	&.241	-Ø3.823
&456.79Ø	&12.Ø99	&Ø92.Ø98	&Ø16Ø.33	&Ø252.43	&Ø4.346	-Ø2.727	-Ø3.845
&456.833	&Ø12.122	&Ø92.12Ø	&16Ø.285	&Ø252.4Ø	&Ø4.364	-Ø4.937	-Ø3.8Ø1
&456.812	&Ø12.155	&Ø92.153	&Ø16Ø.26	&Ø252.41	&Ø4.352	-Ø4.6ØØ	-3.845
&456.855	&Ø12.123	&Ø92.123	&Ø16Ø.31	&Ø252.43	&Ø4.346	-Ø1.Ø91	-Ø3.779
&456.746	&Ø12.12Ø	&92.12Ø	&16Ø.323	&Ø252.44	&Ø4.332	-Ø4.254	-Ø3.867
&456.768	&Ø12.119	&Ø92.118	&Ø16Ø.32	&Ø252.44	&Ø4.352	-Ø7.443	-Ø3.8Ø1
&456.768	&Ø12.152	&Ø92.151	&Ø16Ø.25	&Ø252.43	&Ø4.26Ø	&3.412	-Ø3.845
&456.833	&Ø12.238	&Ø92.236	&Ø16Ø.16	&Ø252.39	&Ø4.321	-Ø2.231	-Ø3.845
&456.812	&Ø12.182	&Ø92.181	&Ø16Ø.25	&Ø252.43	&Ø4.431	-Ø4.Ø23	-Ø3.8Ø1
&456.658	&Ø12.Ø28	&Ø92.Ø27	&Ø16Ø.42	&Ø252.44	&Ø4.474	&Ø1.528	-Ø3.889
&456.7Ø2	&Ø12.Ø16	&Ø92.Ø16	&Ø16Ø.39	&Ø252.41	&Ø4.26Ø	-6.728	-Ø3.757
&456.7Ø2	&Ø12.187	&Ø92.186	&Ø16Ø.21	&Ø252.4Ø	&Ø4.248	-Ø5.9Ø3	-Ø3.845
&456.768	&Ø12.238	&Ø92.236	&Ø16Ø.18	&Ø252.41	&Ø4.352	-Ø1.Ø91	-Ø3.845
&456.812	&Ø12.174	&Ø92.172	&Ø16Ø.26	&Ø252.44	&Ø4.431	-Ø5.449	-Ø3.8Ø1
&456.746	&Ø12.122	&Ø92.12Ø	&16Ø.3Ø7	&Ø252.42	&Ø4.382	-Ø3.Ø48	-Ø3.845
&456.724	&Ø12.136	&Ø92.134	&Ø16Ø.28	&Ø252.41	&Ø4.327	-Ø4.82Ø	-3.845
&456.746	&Ø12.216	&Ø92.214	&Ø16Ø.19	&Ø252.4Ø	&Ø4.285	-Ø.826	-Ø3.823
&456.763	&Ø12.251	&Ø92.249	&Ø16Ø.14	&Ø252.39	&Ø4.352	-Ø7.281	-Ø3.823
&456.812	&Ø12.294	&Ø92.293	&Ø16Ø.1Ø	&Ø252.39	&Ø4.388	-Ø8.626	-Ø3.845
&456.877	&Ø12.337	&Ø92.335	&Ø16Ø.Ø4	&Ø252.38	&Ø4.315	-.496	-Ø3.867
&456.943	&Ø12.399	&Ø92.398	&Ø159.97	&Ø252.37	&4.236	-Ø6.Ø12	-Ø3.779
&456.965	&Ø12.438	&Ø92.436	&Ø159.93	&Ø252.37	&4.291	-Ø4.126	-Ø3.823
&457.Ø53	&Ø12.484	&Ø92.483	&Ø159.87	&252.353	&Ø4.449	-.Ø52	-Ø3.823

[illegible]	0012.572	0092.571	00159.75	00252.32	004.419	-05.471	-03.867
0457.223	0012.637	0092.637	00159.67	00252.31	004.285	-07.050	-3.757
0457.119	0012.653	0092.657	00159.65	00252.31	004.205	-01.605	-03.845
0457.207	0012.656	0092.655	00159.65	00252.31	004.303	-05.062	-03.867
0457.251	0012.662	0092.661	00159.64	00252.30	004.443	-04.288	-03.757
0457.361	0012.724	0092.722	00159.56	0252.282	004.449	-02.150	-3.845
0457.383	0012.809	0092.807	00159.45	00252.26	004.303	-01.320	-3.933
0457.449	0012.843	0092.843	00159.41	00252.25	004.224	-06.141	-03.845
0457.493	0012.859	0092.853	00159.40	00252.25	004.385	-04.004	-03.823
0457.403	0012.885	0092.884	00159.35	00252.24	004.456	-02.203	-03.845
0457.493	0012.885	0092.884	00159.35	00252.24	004.388	-07.315	-03.801
0457.605	0012.896	0092.895	00159.33	00252.22	004.295	0.352	-03.845
0457.712	0013.011	0093.010	0159.189	00252.19	004.150	-.197	-03.845
0457.690	013.043	0093.046	00159.17	0252.216	004.327	-03.148	-03.845
0457.646	0012.900	092.898	00159.36	00252.26	004.517	00.880	-3.889
0457.550	0012.784	0092.782	00159.43	0252.263	004.456	-05.449	-03.867
0457.559	0012.828	0092.826	00159.39	00252.22	004.285	-05.253	-03.801
0457.734	0012.991	0092.991	00159.21	00252.20	004.120	0.488	-03.867
0457.690	013.007	0093.005	00159.20	00252.21	04.370	-2.113	-03.845
0457.600	012.919	0092.917	00159.33	00252.25	004.578	-07.303	-03.823
0457.646	0012.882	0092.881	00159.37	00252.25	004.498	-03.214	-03.867
0457.663	0013.004	0093.002	00159.18	00252.18	004.193	0.115	-03.867
0457.888	0013.196	0093.194	00159.01	00252.20	004.102	-03.083	-03.911
0457.822	0013.222	0093.222	00159.00	00252.22	004.407	-06.932	-03.977
0457.844	0013.069	0093.068	00159.15	00252.22	004.645	-.107	-03.867
0457.800	012.986	0092.985	00159.24	00252.23	04.456	-04.612	-03.823
0457.754	0013.035	0093.035	00159.16	00252.19	004.138	-04.534	-03.911
0457.954	0013.228	0093.227	00158.96	00252.19	004.126	-02.751	-03.845
0458.020	013.239	0093.239	00158.96	00252.20	004.474	-02.540	-3.845
0457.800	013.038	0093.038	00159.17	00252.21	004.687	-04.588	-03.911
0457.778	0012.980	092.977	00159.23	00252.21	004.382	-04.944	-03.867
0457.344	0013.019	0093.018	00159.15	00252.17	004.102	-02.109	-03.845
0457.800	013.085	0093.084	00159.09	00252.17	004.218	-05.725	003.911
0457.822	0013.044	0093.043	00159.16	00252.21	04.474	-07.092	-03.977
0457.646	0012.895	0092.895	00159.35	00252.25	004.572	-00.615	-03.889
0457.550	0012.785	0092.785	00159.49	00252.27	004.362	-05.953	-03.845
0457.515	0012.751	0092.749	00159.55	00252.28	004.187	-03.970	-3.801
0457.449	0012.747	0092.747	00159.54	00252.29	04.285	-01.096	-03.911
0457.493	0012.730	092.730	0159.571	00252.30	004.468	-01.777	-03.867
0457.427	0012.659	0092.659	00159.65	00252.31	004.535	-06.891	-03.845
0457.427	0012.626	0092.626	00159.69	00252.32	04.291	00.513	-03.867
0457.361	0012.621	0092.620	0159.711	00252.33	004.236	-05.239	-03.977
0457.339	0012.601	0092.598	00159.74	00252.33	004.352	-06.021	-03.867
0457.361	0012.582	0092.582	00159.75	00252.33	004.486	-06.274	-03.845
0457.361	0012.584	0092.582	00159.73	00252.32	04.437	-02.442	-03.801
0457.361	0012.625	0092.623	00159.67	00252.30	004.285	-05.561	-03.867
0457.449	0012.631	0092.631	00159.68	00252.31	004.279	-05.331	-03.867
0457.361	0012.609	0092.606	00159.72	00252.33	004.407	-.087	-03.867
0457.339	0012.597	0092.595	00159.72	00252.32	004.462	-05.717	-03.889
0457.427	0012.617	0092.615	00159.67	00252.20	04.340	-3.668	-03.823
[illegible]	0012.647	0092.645	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

8457.561	8Ø12.615	8Ø92.615	8Ø159.71	8Ø252.33	8Ø4.285	-Ø6.912	-Ø3.839
8457.561	8Ø12.633	8Ø92.631	8Ø159.66	8Ø252.29	8Ø4.37Ø	-7.315	-Ø3.845
8457.465	8Ø12.725	8Ø92.725	8Ø159.56	8252.265	8Ø4.419	8Ø1.311	-Ø3.845
8457.359	8Ø12.743	8Ø92.741	8Ø159.53	8Ø252.27	8Ø4.297	-Ø6.115	-Ø3.953
8457.515	8Ø12.783	8Ø92.782	8Ø159.43	8Ø252.26	8Ø4.248	-Ø7.214	-Ø3.867
8457.4Ø3	8Ø12.82Ø	892.818	8Ø159.44	8Ø252.26	8Ø4.327	-Ø2.Ø48	-Ø3.933
8457.559	8Ø12.84Ø	892.84Ø	8159.417	8Ø252.25	8Ø4.413	-Ø2.ØØØ	-3.839
8457.559	8Ø12.86Ø	892.878	8Ø159.36	8Ø252.24	8Ø4.352	-Ø1Ø.325	-Ø3.8Ø1
8457.557	8Ø12.836	8Ø92.884	8Ø159.35	8Ø252.24	8Ø4.242	-Ø5.854	-Ø3.625
8457.515	8Ø12.885	8Ø92.884	8Ø159.35	8Ø252.24	8Ø4.248	-Ø5.631	-Ø3.889
8457.515	8Ø12.886	8Ø92.884	8Ø159.35	8Ø252.24	8Ø4.388	-Ø6.798	-Ø4.746
8457.581	8Ø12.868	8Ø92.867	8Ø159.46	8Ø252.26	8Ø4.358	-Ø7.315	-Ø4.373
8457.495	8Ø12.8Ø5	8Ø92.8Ø4	8Ø159.47	8Ø252.28	8Ø4.224	-Ø3.Ø75	-Ø4.658
8457.515	8Ø12.793	8Ø92.791	8Ø159.48	8Ø252.27	8Ø4.199	-Ø8.815	-Ø4.469
8457.449	8Ø12.842	8Ø92.84Ø	8159.412	8Ø252.25	8Ø4.382	-Ø1Ø.836	-Ø11.755
8457.515	8Ø12.877	8Ø92.876	8Ø159.38	8Ø252.25	8Ø4.48Ø	-8.595	-Ø13.611
8457.515	8Ø12.8Ø2	8Ø92.8Ø2	8Ø159.48	8Ø252.29	84.352	-Ø7.Ø39	-Ø9.954
8457.6Ø5	8Ø12.755	8Ø92.755	8Ø159.54	8Ø252.3Ø	8Ø4.248	-Ø4.456	-Ø4.7Ø2
8457.515	8Ø12.751	8Ø92.749	8Ø159.55	8Ø252.3Ø	8Ø4.385	-Ø6.591	-Ø2.878
8457.4Ø5	8Ø12.752	8Ø92.752	8Ø159.54	8Ø252.3Ø	8Ø4.4Ø7	-Ø6.Ø8Ø	-5.Ø54
8457.495	8Ø12.735	8Ø92.733	8Ø159.57	8Ø252.3Ø	8Ø4.4Ø1	-Ø5.781	-Ø5.625
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Run 11 Leg 2 1/20/66 Printed 6/2/66

ØØØØØØ

BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
&438.2Ø1	&Ø13.531	&Ø73.529	&Ø219.92	&Ø293.45	&4.6Ø2	-Ø5.547	-Ø2.988
&438.311	&Ø13.597	&Ø73.597	&Ø219.83	&Ø293.42	&Ø4.572	-Ø6.879	-3.Ø1Ø
&438.442	&Ø13.694	&Ø73.693	&Ø219.71	&Ø293.4Ø	&Ø4.565	-Ø7.2Ø2	-Ø2.988
&438.618	&Ø13.794	&Ø73.792	&Ø219.6Ø	&Ø293.4Ø	&Ø4.596	-Ø5.577	-Ø2.944
&438.5Ø8	&Ø13.842	&Ø73.842	&Ø219.55	&Ø293.39	&Ø4.6Ø2	-Ø6.185	-Ø3.Ø32
&438.64Ø	&13.919	&Ø73.919	&Ø219.46	&Ø293.38	&Ø4.59Ø	-6.61Ø	-3.Ø32
&438.772	&Ø14.Ø17	&Ø74.Ø15	&Ø219.35	&Ø293.37	&Ø4.59Ø	-5.585	-Ø3.Ø1Ø
&438.75Ø	&14.Ø69	&Ø74.Ø67	&Ø219.3Ø	&Ø293.37	&Ø4.6Ø2	-Ø5.434	-Ø2.988
&438.728	&Ø14.131	&Ø74.13Ø	&219.24Ø	&293.371	&Ø4.639	-Ø5.5Ø9	-Ø3.Ø32
&438.926	&Ø14.213	&Ø74.213	&Ø219.15	&293.362	&Ø4.6Ø2	-Ø6.2Ø2	-Ø3.Ø32
&439.Ø14	&Ø14.333	&Ø74.333	&Ø219.Ø4	&293.373	&Ø4.626	-Ø5.516	-Ø3.Ø1Ø
&438.992	&Ø14.39Ø	&74.388	&Ø218.99	&Ø293.38	&Ø4.626	-Ø6.728	-Ø3.142
&439.Ø36	&Ø14.385	&Ø74.383	&Ø218.99	&Ø293.38	&Ø4.645	-Ø6.246	-Ø2.922
&438.992	&Ø14.382	&Ø74.38Ø	&218.999	&Ø293.37	&Ø4.663	-Ø5.547	-Ø3.Ø54
&439.1Ø2	&Ø14.493	&Ø74.493	&Ø218.87	&293.362	&Ø4.633	-Ø5.789	-Ø3.142
&439.211	&Ø14.588	&Ø74.586	&Ø218.79	&Ø293.38	&Ø4.639	-Ø5.39Ø	-3.Ø76
&439.211	&Ø14.57Ø	&74.57Ø	&218.831	&Ø293.4Ø	&Ø4.669	-Ø5.593	-Ø2.944
&439.146	&Ø14.52Ø	&74.517	&Ø218.86	&Ø293.38	&Ø4.639	-Ø5.995	-Ø3.Ø32
&439.Ø58	&Ø14.519	&Ø74.517	&Ø218.86	&Ø293.37	&Ø4.645	-Ø5.813	-Ø3.Ø76
&439.167	&Ø14.52Ø	&74.517	&Ø218.85	&Ø293.37	&Ø4.663	-Ø5.7Ø1	-Ø3.Ø98
&439.146	&Ø14.4Ø9	&Ø74.4Ø8	&Ø218.98	&Ø293.39	&Ø4.694	-Ø6.779	-Ø3.Ø32
&439.Ø14	&Ø14.276	&Ø74.273	&Ø219.1Ø	&293.373	&Ø4.687	-Ø5.494	-Ø3.Ø32
&438.9Ø4	&Ø14.16Ø	&74.158	&Ø219.22	&Ø293.38	&Ø4.633	-Ø5.441	-Ø3.Ø32
&438.838	&Ø14.Ø22	&Ø74.Ø2Ø	&219.364	&Ø293.38	&Ø4.657	-Ø5.6ØØ	-2.944
&438.596	&Ø13.919	&Ø73.919	&Ø219.46	&Ø293.38	&Ø4.675	-Ø5.346	-Ø2.856
&438.442	&Ø13.817	&Ø73.814	&Ø219.55	&Ø293.36	&Ø4.657	-Ø5.379	-Ø2.856
&438.333	&Ø13.688	&Ø73.688	&Ø219.68	&Ø293.37	&Ø4.687	-Ø5.623	-Ø2.856
&438.223	&Ø13.565	&Ø73.564	&Ø219.83	&Ø293.39	&Ø4.712	-Ø5.6Ø8	-Ø2.856
&438.2Ø1	&Ø13.491	&Ø73.49Ø	&219.9Ø2	&Ø293.39	&Ø4.7Ø6	-Ø5.12Ø	-2.834
&438.135	&Ø13.478	&Ø73.477	&Ø219.91	&Ø293.39	&4.681	-Ø4.918	-Ø2.725
&438.135	&Ø13.446	&Ø73.444	&Ø219.95	&Ø293.4Ø	&Ø4.669	-Ø5.895	-Ø2.791
&438.ØØ3	&Ø13.371	&Ø73.369	&Ø22Ø.Ø4	&Ø293.41	&Ø4.675	-Ø5.196	-Ø2.812
&437.915	&Ø13.317	&Ø73.314	&Ø22Ø.1Ø	&293.415	&Ø4.718	-Ø2.775	-Ø2.856
&437.959	&Ø13.3Ø3	&Ø73.3Ø1	&Ø22Ø.1Ø	&293.4Ø1	&Ø4.718	-Ø5.Ø24	-Ø2.791
&437.915	&Ø13.349	&Ø73.347	&Ø22Ø.Ø8	&Ø293.43	&Ø4.736	-Ø5.14Ø	-2.878
&437.8Ø5	&Ø13.289	&Ø73.287	&Ø22Ø.16	&Ø293.45	&4.749	-Ø5.945	-Ø2.856
&437.8Ø5	&Ø13.239	&Ø73.238	&Ø22Ø.2Ø	&Ø293.43	&Ø4.718	-Ø5.361	-Ø2.856
&437.8Ø5	&Ø13.237	&Ø73.235	&Ø22Ø.2Ø	&Ø293.43	&Ø4.724	-Ø5.281	-Ø2.769
&437.871	&Ø13.233	&Ø73.232	&Ø22Ø.21	&293.442	&Ø4.712	-Ø5.Ø85	-Ø2.791
&437.146	&Ø12.75Ø	&72.749	&Ø22Ø.27	&Ø293.Ø2	&Ø4.761	-Ø5.189	-Ø2.329

6436.267	6011.833	6071.873	60220.38	60292.10	604.755	-05.120	-4.702
6436.289	6011.926	6071.881	60220.27	6292.151	604.755	-05.034	-04.036
6436.267	6011.954	6071.925	60220.22	60292.15	604.779	-06.756	-04.702
6436.289	6012.009	6071.952	60220.19	60292.14	604.791	-05.210	-4.702
6436.333	6012.043	6072.007	60220.12	60292.12	604.761	-06.211	-04.680
6436.355	6012.062	6072.043	60220.10	60292.14	604.761	-05.562	-04.030
6436.289	6012.117	6072.059	60220.07	60292.13	604.779	-04.904	-04.724
6436.399	6012.115	6072.117	60220.01	60292.12	604.755	-05.530	-04.834
6436.465	6012.230	6072.114	60219.97	60292.08	604.718	-05.830	-04.097
6436.575	6012.288	672.230	6219.922	60292.15	604.701	-05.749	-02.001
6436.641	6012.296	6072.287	60219.89	60292.10	604.810	-5.045	-03.304
6436.635	6012.349	6072.296	60219.89	60292.19	64.749	-05.569	-03.340
6436.729	6012.469	6072.340	60219.82	60292.17	604.706	-05.023	-03.274
6436.882	6012.565	6072.400	60219.66	60292.13	604.742	-05.603	-03.340
6436.970	612.629	6072.565	60219.55	60292.13	604.742	-05.603	-03.340
6437.014	6012.686	6072.620	60219.45	60292.11	604.791	-06.100	-03.362
6436.926	6012.690	6072.680	60219.39	60292.00	604.767	-05.900	-3.362
6437.036	6012.709	672.688	60219.39	60292.00	604.767	-05.749	-03.340
6437.344	6012.887	6072.700	60219.33	60292.00	604.761	-05.862	-03.362
6437.278	6012.948	6072.886	60219.11	60292.06	604.742	-05.317	-03.320
6437.256	6012.897	6072.946	60219.05	60292.00	604.709	-05.686	-03.300
6437.278	6012.820	6072.897	60219.14	60292.03	604.016	-6.046	-03.304
6437.278	6012.806	672.820	6219.210	60292.03	604.767	-05.037	-03.340
6437.300	612.819	6072.804	60219.22	60292.03	64.742	-05.085	-03.340
6437.322	6012.827	6072.817	60219.21	6292.028	604.761	-05.368	-03.304
6437.212	6012.733	6072.826	60219.20	60292.02	604.791	-05.397	-03.362
6437.168	6012.656	6072.730	60219.34	60292.07	604.840	-5.274	-03.318
6437.168	6012.648	6072.655	60219.42	60292.08	604.016	-05.207	-03.318
6437.080	612.646	6072.647	60219.44	60292.00	604.785	-05.331	-03.318
6437.036	6012.609	6072.646	60219.44	60292.09	604.767	-05.106	-03.384
6436.970	612.587	6072.609	60219.48	60292.09	604.797	-05.078	-03.340
6436.970	612.523	6072.580	60219.51	60292.10	604.828	-05.501	-03.304
6436.882	6012.466	6072.521	60219.60	60292.12	604.810	-5.662	-03.296
6436.816	6012.466	6072.466	60219.60	60292.15	604.791	-05.331	-03.274
6436.816	6012.463	6072.466	60219.60	60292.15	604.810	-5.071	-03.406
6436.816	6012.408	6072.463	60219.67	60292.14	64.810	-4.011	-03.340
6436.707	6012.320	6072.408	60219.77	60292.17	604.840	-4.904	-03.318
6436.685	6012.325	672.318	60219.87	60292.19	604.034	-05.092	-03.406
6436.663	6012.418	6072.325	60219.05	6292.173	604.316	-05.113	-03.362
6436.729	6012.428	6072.416	60219.72	60292.14	604.034	-05.530	-03.310
6436.707	6012.426	6072.427	60219.71	60292.14	604.046	-05.230	-03.274
6436.707	6012.477	6072.425	60219.73	60292.16	604.810	-5.577	-03.274
6436.794	6012.537	6072.477	60219.63	60292.11	604.767	-05.070	-03.274
6436.794	6012.540	6072.537	60219.56	60292.09	604.705	-05.910	-03.296
6436.794	6012.542	672.537	60219.56	60292.09	604.840	-5.829	-03.208
6436.816	6012.590	6072.548	6219.556	60292.09	604.034	-05.134	-03.340
6436.838	6012.620	672.589	60219.49	60292.00	604.803	-05.207	-03.340
6436.816	6012.629	672.628	6219.466	60292.00	604.828	-05.231	-03.362
6436.772	6012.640	6072.628	60219.45	60292.00	64.846	-05.524	-03.384
6436.882	6012.593	672.639	60219.44	60292.00	604.071	-05.503	-03.362
		6072.592	60219.51	6292.102	604.865	-05.449	-03.318

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	[illegible]	6Ø74.337	6Ø219.97	6Ø292.11	6Ø4.834	-Ø4.Ø52	-Ø3.274
6436.75Ø	612.487	6Ø72.485	6Ø219.66	6Ø292.15	6Ø4.Ø46	-Ø4.221	-Ø3.4Ø6
6436.729	6Ø12.398	6Ø72.397	6Ø219.7Ø	6Ø292.18	6Ø4.852	-Ø6.211	-Ø3.274
6436.663	6Ø12.3Ø8	6Ø72.3Ø7	6Ø219.Ø9	6Ø292.2Ø	6Ø4.Ø34	-Ø5.427	-Ø3.252
6436.531	6Ø12.278	6Ø72.276	6Ø219.91	6Ø292.19	64.Ø4Ø	-Ø5.412	-Ø3.296
6436.553	6Ø12.277	6Ø72.276	6Ø219.91	6Ø292.19	6Ø4.7Ø5	-Ø5.239	-Ø3.274
6436.487	6Ø12.198	6Ø72.197	6Ø22Ø.Ø4	6Ø292.24	6Ø4.82Ø	-Ø5.532	-Ø3.252
6436.399	6Ø12.Ø98	6Ø72.Ø98	6Ø22Ø.15	6Ø292.25	6Ø4.8Ø5	-Ø6.265	-Ø3.2Ø8
6436.223	6Ø12.Ø75	6Ø72.Ø73	6Ø22Ø.16	6Ø292.23	6Ø4.852	-Ø5.2Ø1	-Ø3.34Ø
6436.377	6Ø12.113	6Ø72.111	6Ø22Ø.11	6Ø292.22	6Ø4.7Ø9	-Ø6.ØØ7	-Ø3.164
6436.245	6Ø12.Ø73	6Ø72.Ø73	6Ø22Ø.19	6Ø292.27	6Ø4.84Ø	-5.39Ø	-3.318
6436.289	6Ø11.981	6Ø71.98Ø	622Ø.298	6Ø292.27	6Ø4.828	-Ø4.794	-Ø3.142
6436.157	6Ø11.943	6Ø71.941	6Ø22Ø.34	6Ø292.2Ø	6Ø4.Ø34	-Ø4.14Ø	-3.274
6436.Ø91	6Ø11.893	6Ø71.892	6Ø22Ø.3Ø	6292.272	6Ø4.Ø4Ø	-6.2Ø2	-Ø3.318
6436.135	6Ø11.887	6Ø71.886	6Ø22Ø.37	6Ø292.26	6Ø4.Ø22	-Ø6.Ø21	-Ø3.23Ø
6436.Ø25	6Ø11.937	6Ø71.936	6Ø22Ø.32	6Ø292.26	6Ø4.85Ø	-Ø5.1Ø1	-Ø3.34Ø
6436.Ø47	6Ø11.861	6Ø71.859	6Ø22Ø.44	6Ø292.29	6Ø4.852	-Ø5.39Ø	-3.252
6435.981	6Ø11.738	6Ø71.738	6Ø22Ø.56	6Ø292.42	6Ø4.852	-Ø5.224	-Ø3.296
6435.981	6Ø11.721	6Ø71.719	6Ø22Ø.56	6Ø292.2Ø	6Ø4.Ø4Ø	-5.182	-Ø3.274
6435.959	6Ø11.772	6Ø71.771	6Ø22Ø.49	6Ø292.26	6Ø4.Ø4Ø	-5.346	-Ø3.296
6435.959	6Ø11.768	6Ø71.768	6Ø22Ø.53	6Ø292.3Ø	6Ø4.Ø22	-Ø5.Ø54	-Ø3.274
6435.8Ø6	6Ø11.623	6Ø71.623	6Ø22Ø.67	6Ø292.29	6Ø4.852	-Ø5.259	-Ø3.318
6435.752	6Ø11.583	6Ø71.581	6Ø22Ø.7Ø	6Ø292.2Ø	6Ø4.Ø58	-Ø5.Ø38	-Ø3.318
6435.784	6Ø11.6Ø3	6Ø71.6Ø3	6Ø22Ø.66	6Ø292.26	6Ø4.871	-Ø5.21Ø	-3.318
6435.784	6Ø11.684	6Ø71.683	6Ø22Ø.59	6Ø292.27	6Ø4.Ø46	-Ø5.4Ø4	-Ø3.252
6435.762	6Ø11.712	6Ø71.71Ø	622Ø.567	6Ø292.27	6Ø4.Ø58	-Ø5.2Ø7	-Ø3.362
6435.718	6Ø11.733	6Ø71.732	6Ø22Ø.52	6Ø292.26	6Ø4.Ø71	-Ø5.253	-Ø3.3Ø4
6435.828	6Ø11.792	6Ø71.79Ø	622Ø.474	6Ø292.26	6Ø4.Ø4Ø	-4.7Ø1	-Ø3.274
6435.937	6Ø11.827	6Ø71.826	6Ø22Ø.43	6Ø292.26	6Ø4.816	-Ø5.532	-Ø3.186
6435.894	6Ø11.885	6Ø71.884	6Ø22Ø.37	6Ø292.25	6Ø4.81Ø	-5.361	-Ø3.274
6435.981	6Ø12.Ø14	6Ø72.Ø13	6Ø22Ø.23	6Ø292.24	6Ø4.816	-Ø5.31Ø	-3.362
6436.113	6Ø12.Ø72	6Ø72.Ø7Ø	622Ø.172	6Ø292.24	6Ø4.785	-Ø5.5Ø9	-Ø3.2Ø8
6436.135	6Ø12.1ØØ	672.Ø9Ø	6Ø22Ø.13	6Ø292.23	6Ø4.81Ø	-5.Ø45	-Ø3.23Ø
6436.245	6Ø12.199	6Ø72.197	6Ø22Ø.ØØ	6Ø292.2Ø	6Ø4.767	-Ø5.375	-Ø3.252
6436.443	6Ø12.385	6Ø72.3Ø3	6Ø219.75	6Ø292.14	64.7Ø1	-Ø5.Ø51	-Ø3.252
6436.619	6Ø12.567	6Ø72.565	6Ø219.53	6Ø292.Ø9	6Ø4.779	-Ø5.182	-Ø3.252
6436.685	6Ø12.632	6Ø72.631	6Ø219.46	6Ø292.Ø9	6Ø4.828	-Ø5.725	-Ø3.296
6436.75Ø	612.642	6Ø72.642	6Ø219.44	6Ø292.Ø8	6Ø4.785	-Ø5.Ø31	-Ø3.296
6436.97Ø	612.858	6Ø72.856	6Ø219.15	6292.ØØ6	6Ø4.718	-Ø5.346	-Ø3.384
6437.234	6Ø13.Ø99	6Ø73.Ø98	6Ø218.Ø9	6Ø291.99	6Ø4.687	-Ø5.147	-Ø3.472
6437.3ØØ	613.127	6Ø73.125	6Ø218.88	6Ø292.Ø1	6Ø4.724	-Ø4.924	-Ø3.274
6437.278	6Ø13.Ø29	6Ø73.Ø26	6Ø218.99	6292.Ø17	6Ø4.73Ø	-Ø4.794	-Ø3.362
6437.322	6Ø13.Ø33	6Ø73.Ø32	6Ø218.95	6Ø291.99	6Ø4.663	-Ø5.Ø78	-Ø3.318
6437.388	6Ø13.Ø98	6Ø73.Ø98	6Ø218.39	6Ø291.99	6Ø4.62Ø	-Ø4.756	-Ø3.274
6437.344	6Ø12.992	6Ø72.99Ø	6219.Ø62	6Ø292.Ø5	6Ø4.681	-Ø4.Ø59	-Ø3.274
6437.Ø14	6Ø12.867	6Ø72.867	6Ø219.1Ø	6Ø292.Ø9	6Ø4.6Ø4	-Ø4.924	-Ø3.4Ø6
6437.168	6Ø12.858	6Ø72.856	6Ø219.1Ø	6Ø292.Ø5	6Ø4.593	[illegible]	-Ø3.274
6437.Ø36	6Ø12.845	6Ø72.845	6Ø219.22	6Ø292.Ø7	6Ø4.633	-Ø5.361	-Ø3.318
6436.948	6Ø12.72Ø	672.719	6Ø219.38	6Ø292.16	6Ø4.596	-Ø5.3Ø6	-Ø3.274
6436.9Ø4	6Ø12.691	6Ø72.691	6Ø219.42	6Ø292.11	6Ø4.62Ø	-Ø5.817	-Ø3.296
6436.86Ø	612.691	6Ø72.691	6Ø219.41	6Ø292.1Ø	6Ø4.572	-Ø4.991	-Ø3.296

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6437.388	6013.098	6073.098	60218.89	60291.99	604.026	-04.756	-03.274
6437.344	6012.992	6072.990	6219.062	60292.05	604.001	-04.859	-03.274
6437.014	6012.867	6072.867	60219.19	60292.06	604.604	-04.924	-03.400
6437.168	6012.858	6072.856	60219.19	60292.05	604.590	-5.203	-03.274
6437.036	6012.845	6072.845	60219.22	60292.07	604.633	-05.361	-03.310
6436.948	6012.720	672.719	60219.30	60292.10	604.596	-05.390	-3.274
6436.904	6012.691	6072.691	60219.42	60292.11	604.626	-05.813	-03.296
6436.860	612.691	6072.691	60219.41	60292.10	604.572	-04.951	-03.296
6437.014	6012.726	6072.724	60219.36	60292.00	604.517	-05.024	-03.296
6436.992	6012.708	6072.708	60219.40	60292.11	604.572	-05.031	-03.274
6436.882	6012.620	672.620	6219.523	60292.14	604.535	-04.931	-03.230
6436.663	6012.515	6072.515	60219.67	60292.19	64.565	-05.161	-03.340
6436.597	6012.434	6072.433	60219.77	60292.20	604.529	-06.010	-3.208
6436.575	6012.421	6072.419	60219.78	60292.20	604.498	-06.501	-03.230
6436.553	6012.422	6072.422	60219.78	60292.20	604.510	-5.961	-03.296
6436.509	6012.399	6072.397	60219.82	60292.22	604.547	-05.441	-03.318
6436.399	6012.256	6072.254	60220.00	60292.26	604.553	-05.686	-03.230
6436.333	6012.224	6072.221	60220.02	60292.24	604.504	-06.152	-03.230
6436.333	6012.294	6072.293	60219.92	60292.21	604.510	-5.106	-03.252
6436.289	6012.299	6072.298	60219.94	60292.23	604.504	-05.547	-03.340
6436.333	6012.268	6072.268	60219.97	60292.24	604.602	-06.170	-03.340
6436.311	6012.302	6072.301	60219.92	60292.22	604.565	-06.183	-03.384
6436.267	6012.331	6072.328	60219.89	60292.22	64.570	-06.600	-3.362
6436.289	6012.314	6072.312	60219.92	60292.23	604.614	-06.328	-03.406
6436.289	6012.296	6072.296	60219.93	60292.23	604.590	-6.943	-03.428
6436.377	6012.307	6072.307	60219.91	60292.31	604.553	-07.330	-03.200
6436.355	6012.338	6072.337	60219.87	60292.21	604.572	-07.361	-03.310
6436.333	6012.348	6072.348	60219.80	60292.21	604.590	-6.303	-03.406
6436.311	6012.336	6072.334	60219.90	60292.23	604.572	-06.611	-03.340
6436.377	6012.330	672.328	60219.91	60292.23	604.547	-05.010	-03.252
6436.355	6012.331	6072.328	60219.90	60292.23	604.590	-5.317	-03.340
6436.355	6012.315	6072.315	60219.93	60292.24	604.596	-06.420	-3.362
6436.355	6012.291	6072.290	6219.957	60292.24	604.529	-06.849	-03.274
6436.333	6012.285	6072.285	60219.96	6292.245	[illegible]	-05.797	-03.230
6436.289	6012.276	6072.274	60219.97	60292.24	[illegible]	-06.029	-03.318
6436.311	6012.268	6072.268	60219.97	60292.24	604.547	-07.350	-3.296
6436.311	6012.333	6072.331	60219.87	60292.20	604.590	-6.193	-03.340
6436.465	6012.460	672.460	6219.707	60292.16	604.584	-00.748	-03.296
6436.685	6012.690	672.688	60219.42	60292.11	[illegible]	-6.690	-03.318
6437.036	6012.968	6072.966	60219.05	60292.02	[illegible]	-05.709	-03.384
6437.278	6013.202	6073.202	60218.75	60291.95	604.559	-07.000	-3.274
6437.563	6013.525	6073.523	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

&437.981	&013.981	&073.979	&0217.83	&0291.81	&04.580	-05.962	-03.494
&438.267	&014.460	&74.460	&217.351	&0291.81	&04.541	-06.591	-03.538
&438.960	&15.028	&075.026	&0216.84	&0291.87	&04.510	-7.039	-03.494
&439.277	&015.663	&075.663	&0216.32	&0291.98	&04.504	-07.396	-03.647
&439.937	&016.243	&076.242	&0215.83	&0292.00	&4.504	-06.819	-03.604
&440.442	&016.815	&076.814	&0215.27	&0292.00	&04.541	-06.954	-03.582
&441.277	&07.457	&077.456	&0214.52	&0291.98	&04.486	-08.228	-03.538
&442.068	&08.073	&078.072	&0213.79	&0291.86	&04.504	-08.342	-03.530
&442.771	&08.668	&078.668	&0213.14	&0291.81	&04.572	-06.639	-03.406
&443.584	&09.476	&079.475	&0212.36	&0291.84	&04.570	-06.620	-3.428
&444.551	&010.584	&080.582	&0211.45	&0292.03	&04.535	-07.114	-03.318
&445.496	&011.576	&081.573	&0210.60	&0292.17	&04.406	-08.864	-03.252
&446.287	&012.308	&082.307	&0209.83	&0292.13	&04.572	-07.502	-03.252
&447.034	&013.001	&082.999	&0208.96	&0291.96	&04.584	-07.490	-3.318
&447.935	&013.967	&083.966	&0207.62	&0291.79	&04.504	-07.431	-03.518
&449.055	&015.210	&85.210	&206.658	&0291.86	&04.487	-08.290	-03.604
&450.000	&16.315	&086.314	&0205.74	&0292.06	&04.449	-08.171	-03.604
&450.923	&017.150	&87.049	&0204.87	&0292.02	&04.474	-08.356	-03.582
&452.175	&08.047	&088.047	&0203.81	&0291.86	&4.468	-07.270	-3.406
&453.318	&09.109	&089.107	&0202.68	&0291.78	&04.437	-07.202	-03.428
&454.307	&010.211	&090.209	&0201.75	&0291.96	&04.462	-07.747	-03.340
&454.988	&011.026	&091.024	&0201.09	&0292.11	&04.462	-07.530	-03.340
&455.647	&011.499	&091.497	&0200.70	&0292.20	&04.504	-06.392	-03.164
&455.845	&011.742	&091.741	&0200.49	&292.231	&04.517	-07.635	-03.230
&456.042	&011.940	&91.939	&0200.27	&0292.21	&04.474	-07.443	-03.180
&456.240	&12.090	&92.087	&0200.12	&0292.20	&04.474	-06.943	-03.142
&456.152	&012.096	&092.096	&0200.13	&0292.22	&04.547	-08.214	-03.208
&455.977	&011.882	&091.881	&0200.37	&0292.25	&04.584	-06.912	-03.252
&455.999	&011.804	&091.802	&0200.43	&0292.23	&04.559	-06.373	-03.252
&456.042	&011.920	&91.920	&200.275	&0292.19	&04.408	-06.448	-03.252
&456.086	&012.042	&092.041	&0200.17	&0292.21	&04.517	-07.037	-03.208
&456.152	&012.059	&092.057	&0200.16	&0292.22	&04.553	-07.635	-03.120
&456.196	&012.097	&092.096	&0200.10	&0292.20	&04.523	-07.361	-03.230
&456.372	&012.316	&092.315	&0199.84	&0292.15	&04.504	-06.523	-03.274
&456.526	&012.537	&092.535	&0199.58	&292.115	&04.474	-07.180	-3.252
&456.746	&012.676	&092.675	&0199.41	&0292.09	&04.474	-06.690	-03.310
&456.790	&12.742	&092.741	&0199.34	&0292.08	&04.547	-06.029	-03.420
&456.899	&012.798	&092.796	&0199.26	&0292.06	&04.565	-06.486	-03.304
&457.031	&012.890	&92.889	&0199.14	&0292.03	&04.541	-06.038	-03.450
&457.163	&013.015	&093.013	&0198.99	&0292.00	&04.486	-06.678	-03.384
&457.295	&013.152	&093.150	&198.811	&0291.96	&04.449	-06.870	-3.296
&457.493	&013.214	&093.214	&0198.74	&0291.95	&04.462	-05.906	-03.310
&457.405	&013.098	&093.098	&0198.91	&0292.01	&04.500	-5.457	-03.274
&457.295	&013.012	&093.010	&198.995	&0292.00	&04.510	-6.630	-3.186
&457.449	&013.230	&93.230	&198.699	&0291.92	&04.395	-06.912	-03.318
&457.559	&013.417	&093.417	&0198.50	&0291.92	&04.480	-6.429	-03.384
&457.449	&013.361	&093.359	&0198.58	&0291.94	&04.620	-5.878	-03.420
&457.471	&013.235	&093.233	&0198.73	&0291.96	&04.572	-06.708	-03.362
&457.449	&013.2 8	&093.216	&0198.72	&0291.93	&04.462	-06.097	-03.494
&457.427	&013.295	&093.293	&0198.61	&0291.91	&04.443	-06.922	-03.304
&457.493	&013.294	&093.293	&0198.64	&0291.97	&04.409	[illegible]	[illegible]

8457.47[illegible]	8Ø13.197	8Ø93.197	8Ø198.77	8291.9Ø7	8Ø4.529	-Ø5.324	-Ø3.34Ø
8457.383	8Ø13.122	8Ø93.12Ø	8198.864	8Ø291.98	8Ø4.553	-Ø5.14Ø	-3.252
8457.251	8Ø13.Ø88	8Ø93.Ø87	8Ø198.9Ø	8Ø291.99	8Ø4.474	-Ø6.246	-Ø3.318
8457.295	8Ø13.Ø51	8Ø93.Ø49	8Ø198.95	8Ø292.ØØ	8Ø4.462	-Ø5.725	-Ø3.296
8457.163	8Ø12.935	8Ø92.933	8Ø199.13	8Ø292.Ø6	8Ø4.541	-Ø5.339	-Ø3.186
8456.965	8Ø12.728	8Ø92.727	8Ø199.42	8Ø292.14	8Ø4.547	-Ø5.369	-Ø3.252
8456.746	8Ø12.537	8Ø92.535	8Ø199.67	8Ø292.2Ø	8Ø4.529	-Ø5.361	-Ø3.252
8456.614	8Ø12.421	8Ø92.42Ø	8199.8Ø3	8Ø292.22	8Ø4.48Ø	-[illegible].267	-Ø3.186
8456.614	8Ø12.358	8Ø92.357	8Ø199.88	8Ø292.24	8Ø4.486	-Ø6.476	-Ø3.2Ø8
8456.328	8Ø12.2Ø9	8Ø92.2Ø8	8Ø2ØØ.Ø8	8292.288	8Ø4.59Ø	-6.158	-Ø3.318
8456.1Ø8	8Ø11.969	8Ø91.967	8Ø2ØØ.35	8Ø292.31	8Ø4.596	-Ø6.799	-Ø3.318
8455.955	8Ø11.841	8Ø91.84Ø	82ØØ.473	8Ø292.31	8Ø4.559	-Ø6.255	-Ø3.274
8455.867	8Ø11.846	8Ø91.846	8Ø2ØØ.44	8Ø292.29	8Ø4.523	-Ø5.693	-Ø3.362
8455.845	8Ø11.913	8Ø91.912	8Ø2ØØ.38	8Ø292.29	8Ø4.553	-Ø5.375	-Ø3.31Ø
8455.8Ø1	8Ø11.724	8Ø91.722	8Ø2ØØ.61	8Ø292.33	8Ø4.633	-Ø3.753	-Ø3.274
8455.647	8Ø11.495	8Ø91.494	8Ø2ØØ.82	8Ø292.31	8Ø4.663	-Ø1.Ø96	-Ø3.23Ø
8455.537	8Ø11.437	8Ø91.436	8Ø2ØØ.84	8Ø292.28	8Ø4.572	-Ø5.911	-Ø3.318
8455.537	8Ø11.579	8Ø91.577	8Ø2ØØ.69	8Ø292.26	8Ø4.5Ø4	-Ø5.895	-Ø3.23Ø
8455.691	8Ø11.673	8Ø91.673	8Ø2ØØ.62	8Ø292.29	8Ø4.541	-Ø6.61Ø	-3.2Ø8
8455.625	8Ø11.539	8Ø91.538	8Ø2ØØ.78	8Ø292.32	8Ø4.657	-Ø5.441	-Ø3.252
8455.493	8Ø11.4Ø4	8Ø91.4Ø3	8Ø2ØØ.89	8Ø292.29	8Ø4.645	-Ø6.639	-Ø3.296
8455.449	8Ø11.461	8Ø91.461	8Ø2ØØ.8Ø	8Ø292.26	8Ø4.523	-Ø6.4Ø1	-Ø3.274
8455.647	8Ø11.635	8Ø91.634	8Ø2ØØ.64	8Ø292.28	8Ø4.5Ø4	-Ø5.434	-Ø3.252
8455.625	8Ø11.691	8Ø91.689	8Ø2ØØ.61	8Ø292.3Ø	8Ø4.59Ø	-5.346	-Ø3.4Ø6
8455.581	8Ø11.667	8Ø91.664	8Ø2ØØ.64	8Ø292.31	8Ø4.626	-Ø5.8Ø5	-Ø3.384
8455.537	8Ø11.648	8Ø91.648	8Ø2ØØ.64	8Ø292.28	8Ø4.6Ø8	-Ø5.471	-Ø3.362
8455.713	8Ø11.81Ø	891.81Ø	82ØØ.465	8Ø292.27	8Ø4.6Ø8	-.3ØØ	-3.316
8455.889	8Ø11.942	8Ø91.939	8Ø2ØØ.33	8Ø292.27	8Ø4.578	-Ø5.7Ø9	-Ø3.296
8455.955	8Ø12.Ø12	8Ø92.Ø1Ø	82ØØ.253	8Ø292.26	8Ø4.596	-Ø9.329	-Ø3.34Ø
8456.174	8Ø12.138	8Ø92.137	8Ø2ØØ.Ø9	8Ø292.23	8Ø4.633	-Ø6.167	-Ø3.252
8456.328	8Ø12.317	8Ø92.315	8Ø199.86	8Ø292.18	8Ø4.62Ø	-4.731	-Ø3.318
8456.482	8Ø12.453	8Ø92.453	8Ø199.7Ø	8Ø292.15	8Ø4.584	-Ø5.995	-Ø3.274
8456.57Ø	812.537	8Ø92.535	8Ø199.6Ø	8Ø292.13	8Ø4.565	-Ø7.Ø28	-Ø3.296
8456.636	8Ø12.586	8Ø92.584	8Ø199.53	8Ø292.12	8Ø4.614	-Ø4.769	-Ø3.296
8456.79Ø	812.686	8Ø92.686	8Ø199.4Ø	8Ø292.Ø9	8Ø4.651	-Ø4.186	-Ø3.318
8456.943	8Ø12.866	8Ø92.865	8Ø199.17	8Ø292.Ø4	8Ø4.578	-Ø6.Ø21	-Ø3.318
8457.Ø31	8Ø12.968	8Ø92.966	8Ø199.Ø6	8Ø292.Ø3	84.565	-Ø4.827	-Ø3.4Ø6
8457.Ø75	8Ø12.973	8Ø92.972	8Ø199.Ø5	8Ø292.Ø2	8Ø4.59Ø	-5.434	-Ø3.296
8457.Ø75	8Ø12.974	8Ø92.972	8Ø199.Ø6	8Ø292.Ø3	8Ø4.633	-Ø5.12Ø	-3.34Ø
8457.141	8Ø12.974	8Ø92.972	8Ø199.Ø6	8Ø292.Ø3	8Ø4.614	-Ø5.281	-Ø3.274
8457.2Ø7	8Ø13.Ø48	8Ø93.Ø46	8Ø198.94	8Ø291.99	8Ø4.584	-Ø6.373	-Ø3.34Ø
8457.273	8Ø13.162	8Ø93.161	8Ø198.81	8Ø291.97	8Ø4.553	-Ø5.878	-Ø3.362
8457.317	8Ø13.193	8Ø93.192	8Ø198.78	8Ø291.97	8Ø4.6Ø2	-Ø5.288	-Ø3.34Ø
8457.295	8Ø13.193	8Ø93.192	8Ø198.78	8Ø291.98	8Ø4.651	-Ø4.794	-Ø3.318
8457.273	8Ø13.2Ø4	8Ø93.2Ø3	8Ø198.75	8Ø291.96	8Ø4.626	-Ø5.419	-Ø3.296
8457.339	8Ø13.278	8Ø93.277	8Ø198.66	8291.937	8Ø4.596	-Ø5.945	-Ø3.34Ø
8457.361	8Ø13.333	8Ø93.332	8Ø198.59	8Ø291.92	8Ø4.584	-Ø5.554	-Ø3.362
8457.449	8Ø13.373	8Ø93.373	8Ø198.57	8Ø291.94	8Ø4.596	-Ø5.547	-Ø3.384
8457.383	8Ø13.375	8Ø93.373	8Ø198.57	8Ø291.95	8Ø4.62Ø	-5.516	-Ø3.384
8457.427	8Ø13.296	8Ø93.296	8Ø198.66	8291.956	8Ø4.681	-Ø5.224	-Ø3.384
8457.449	8Ø13.256	8Ø93.255	8Ø198.6[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

8457.383	8Ø13.273	8Ø93.271	8Ø198.65	8Ø291.92	8Ø4.572	-Ø5.361	-Ø3.296
8457.4Ø5	8Ø13.344	8Ø93.343	8Ø198.57	8Ø291.91	8Ø4.565	-Ø5.765	-Ø3.34Ø
8457.339	8Ø13.177	8Ø93.175	8Ø198.81	8Ø291.99	8Ø4.651	-Ø6.115	-Ø3.23Ø
8457.163	8Ø12.955	8Ø92.953	8Ø199.Ø9	8Ø292.Ø5	84.724	-Ø5.Ø99	-Ø3.296
8457.Ø31	8Ø12.92Ø	892.92Ø	8199.138	8Ø292.Ø5	8Ø4.62Ø	-5.134	-Ø3.3Ø2
8457.Ø75	8Ø12.925	8Ø92.922	8Ø199.Ø9	8Ø292.Ø1	8Ø4.559	-Ø6.Ø21	-Ø3.296
8457.Ø75	8Ø12.832	8Ø92.832	8Ø199.28	8Ø292.11	8Ø4.681	-Ø6.429	-Ø3.274
8456.7Ø2	8Ø12.623	8Ø92.623	8Ø199.54	8Ø292.16	8Ø4.736	-Ø5.6ØØ	-3.296
8456.658	8Ø12.571	8Ø92.571	8Ø199.6Ø	8Ø292.17	8Ø4.657	-Ø5.662	-Ø3.186
8456.592	8Ø12.515	8Ø92.513	8Ø199.68	8Ø292.2Ø	8Ø4.584	-Ø5.346	-Ø3.274
8456.438	8Ø12.347	8Ø92.346	8Ø199.9Ø	8Ø292.25	84.614	-Ø5.317	-Ø3.23Ø
8456.284	8Ø12.239	8Ø92.238	8Ø2ØØ.Ø2	8Ø292.26	8Ø4.694	-Ø5.797	-Ø3.252
8456.196	8Ø12.22Ø	892.219	8Ø2ØØ.Ø3	8Ø292.25	8Ø4.669	-Ø5.464	-Ø3.296
8456.328	8Ø12.273	8Ø92.271	8Ø199.95	8Ø292.22	8Ø4.6Ø8	-Ø5.7Ø9	-Ø3.23Ø
8456.262	8Ø12.263	8Ø92.26Ø	82ØØ.ØØ1	8Ø292.26	8Ø4.626	-Ø5.725	-Ø3.252
8456.Ø86	8Ø12.117	8Ø92.115	8Ø2ØØ.17	8Ø292.29	8Ø4.681	-Ø5.813	-Ø3.313
8456.Ø21	8Ø12.Ø4Ø	892.Ø38	8Ø2ØØ.24	8Ø292.23	84.675	-Ø6.123	-Ø3.142
8456.Ø64	8Ø12.1Ø3	8Ø92.1Ø1	8Ø2ØØ.14	8Ø292.24	8Ø4.626	-Ø5.789	-Ø3.2Ø8
8456.218	8Ø12.297	8Ø92.296	8Ø199.92	8Ø292.21	8Ø4.572	-Ø5.126	-Ø3.186
8456.262	8Ø12.314	8Ø92.313	8Ø199.93	8Ø292.24	8Ø4.651	-Ø5.749	-Ø3.23Ø
8456.Ø21	8Ø12.111	8Ø92.1Ø9	8Ø2ØØ.19	8Ø292.3Ø	8Ø4.749	-Ø6.292	-Ø3.296
8456.Ø86	8Ø12.Ø27	8Ø92.Ø27	8Ø2ØØ.26	8Ø292.29	8Ø4.675	-Ø5.427	-Ø3.23Ø
8456.152	8Ø12.182	8Ø92.181	8Ø2ØØ.Ø4	8Ø292.22	8Ø4.553	-Ø5.2Ø8	-Ø3.2Ø8
8456.196	8Ø12.314	8Ø92.313	8Ø199.91	8Ø292.22	8Ø4.584	-Ø5.434	-Ø3.23Ø
8456.174	8Ø12.229	8Ø92.227	8Ø2ØØ.Ø5	8Ø292.28	8Ø4.712	-Ø6.Ø29	-Ø3.23Ø
8456.1Ø8	8Ø12.114	8Ø92.112	8Ø2ØØ.17	8Ø292.29	8Ø4.712	-Ø5.554	-Ø3.2Ø8
8456.Ø86	8Ø12.Ø95	8Ø92.Ø93	8Ø2ØØ.17	8Ø292.26	8Ø4.6Ø8	-Ø6.Ø63	-Ø3.252
8456.1Ø8	8Ø12.169	8Ø92.167	8Ø2ØØ.Ø7	8Ø292.23	8Ø4.572	-Ø5.765	-Ø3.23Ø
8456.1Ø8	8Ø12.2Ø8	8Ø92.2Ø8	8Ø2ØØ.Ø3	8Ø292.24	8Ø4.6Ø8	-Ø6.63Ø	-3.274
8456.13Ø	812.213	8Ø92.211	8Ø2ØØ.Ø3	8Ø292.25	84.681	-Ø5.383	-Ø3.296
8ØØØØØ.Ø	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	-3.296
8ØØØØØ.Ø	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	-3.296
8ØØØØØ.Ø	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	-3.296
8ØØØØØ.Ø	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	-3.296
8ØØØØØ.Ø	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	-3.296
8ØØØØØ.Ø	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	-3.296
8ØØØØØ.Ø	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	8ØØØØ.ØØ	-3.296

Test II Leg 2 Active Pinging (Sample Beginning with #1)

BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
8456.174	8Ø12.192	8Ø92.192	8Ø2ØØ.Ø7	8Ø292.26	8Ø4.681	-Ø5.569	-Ø3.23Ø
8456.394	8Ø12.43Ø	892.428	8Ø199.78	8Ø292.2Ø	8Ø4.651	-Ø5.532	-Ø3.318
8456.174	8Ø12.311	8Ø92.31Ø	8199.935	8Ø292.24	8Ø4.724	-Ø5.829	-Ø3.34Ø
8456.35Ø	812.271	8Ø92.269	8Ø199.95	8Ø292.22	8Ø4.7ØØ	-5.175	-Ø3.296
8456.372	8Ø12.4Ø7	8Ø92.4Ø6	8Ø199.77	8Ø292.18	8Ø4.626	-Ø6.149	-Ø3.274
8456.35Ø	812.458	8Ø92.458	8Ø199.74	8Ø292.2Ø	8Ø4.651	-Ø5.Ø71	-Ø3.296
8456.24Ø	812.292	8Ø92.291	8Ø199.96	[illegible]	[illegible]		

&456.262	&Ø12.225	&Ø92.225	&Ø2ØØ.Ø2	&Ø292.25	&4.675	-Ø6.282	-Ø3.252
&456.196	&Ø12.341	&Ø92.34Ø	&199.849	&Ø292.19	&4.6Ø8	-Ø4.137	-Ø3.318
&456.35Ø	&12.451	&Ø92.45Ø	&199.74Ø	&292.19Ø	&4.596	-Ø7.478	-Ø3.274
&456.35Ø	&12.439	&Ø92.439	&Ø199.77	&292.2Ø9	&Ø4.694	-Ø3.513	-Ø3.2Ø8
&456.372	&Ø12.372	&Ø92.37Ø	&199.849	&Ø292.22	&4.712	-Ø4.Ø55	-Ø3.274
&456.35Ø	&12.382	&Ø92.381	&Ø199.81	&Ø292.19	&Ø4.639	-Ø4.248	-Ø3.23Ø
&456.416	&Ø12.514	&Ø92.513	&Ø199.66	&292.173	&Ø4.6Ø2	-Ø8.348	-Ø3.296
&456.46Ø	&12.55Ø	&92.549	&Ø199.63	&Ø292.18	&Ø4.626	-Ø2.196	-Ø3.186
&456.46Ø	&12.552	&Ø92.552	&Ø199.63	&Ø292.19	&4.675	-Ø6.Ø63	-Ø3.274
&456.5Ø4	&Ø12.578	&Ø92.576	&Ø199.58	&Ø292.15	&Ø4.633	-.463	-Ø3.34Ø
&456.526	&Ø12.632	&Ø92.631	&Ø199.51	&Ø292.14	&Ø4.62Ø	&3.65Ø	-3.34Ø
&456.5Ø4	&Ø12.633	&Ø92.631	&Ø199.51	&Ø292.14	&Ø4.633	-Ø2.567	-Ø3.362
&456.526	&Ø12.628	&Ø92.626	&Ø199.51	&Ø292.13	&Ø4.651	-Ø2.278	-Ø3.318
&456.548	&Ø12.666	&Ø92.664	&Ø199.42	&Ø292.Ø9	&Ø4.626	-Ø4.45Ø	-3.274
&456.724	&Ø12.747	&Ø92.747	&Ø199.33	&292.Ø77	&Ø4.572	-Ø6.292	-Ø3.252
&456.658	&Ø12.76Ø	&92.758	&Ø199.31	&Ø292.Ø7	&Ø4.651	&Ø2.756	-Ø3.23Ø
&456.68Ø	&12.761	&Ø92.76Ø	&199.317	&Ø292.Ø7	&Ø4.663	-Ø3.122	-Ø3.252
&456.658	&Ø12.762	&Ø92.76Ø	&199.319	&Ø292.Ø8	&4.663	-Ø4.552	-Ø3.274
&456.636	&Ø12.745	&Ø92.744	&Ø199.33	&Ø292.Ø8	&Ø4.596	-Ø3.996	-Ø3.252
&456.636	&Ø12.673	&Ø92.672	&Ø199.44	&Ø292.11	&Ø4.62Ø	-6.912	-Ø3.274
&456.57Ø	&12.58Ø	&92.579	&Ø199.56	&Ø292.14	&Ø4.645	-Ø.748	-Ø3.274
&456.57Ø	&12.537	&Ø92.535	&Ø199.61	&Ø292.15	&Ø4.639	-Ø4.971	-Ø3.23Ø
&456.482	&Ø12.497	&Ø92.497	&Ø199.67	&Ø292.17	&Ø4.626	-Ø6.872	-3.274
&456.35Ø	&12.333	&Ø92.332	&Ø199.91	&Ø292.24	&Ø4.626	-Ø9.275	-Ø3.23Ø
&456.13Ø	&12.155	&Ø92.153	&Ø2ØØ.13	&Ø292.28	&Ø4.645	-Ø6.282	-Ø3.252
&456.174	&Ø12.128	&Ø92.126	&Ø2ØØ.13	&Ø292.26	&Ø4.6Ø2	&Ø2.474	-Ø3.2Ø8
&456.1Ø8	&Ø12.252	&Ø92.252	&Ø199.98	&Ø292.23	&Ø4.6Ø8	-Ø3.143	-Ø3.2Ø8
&456.1Ø8	&Ø12.2Ø7	&Ø92.2Ø5	&Ø2ØØ.Ø8	&292.286	&Ø4.663	-Ø5.132	-Ø3.23Ø
&456.Ø21	&Ø12.ØØ4	&Ø92.ØØ2	&Ø2ØØ.3Ø	&Ø292.31	&4.651	-Ø1.559	-Ø3.186
&455.933	&Ø11.947	&Ø91.945	&Ø2ØØ.33	&Ø292.28	&4.596	-Ø.946	-Ø3.2Ø8
&455.933	&Ø12.Ø76	&Ø92.Ø76	&Ø2ØØ.18	&Ø292.26	&Ø4.578	&Ø1.145	-Ø3.252
&455.955	&Ø12.114	&Ø92.112	&Ø2ØØ.16	&292.272	&Ø4.657	-Ø6.659	-Ø3.23Ø
&455.977	&Ø12.Ø28	&Ø92.Ø27	&Ø2ØØ.27	&Ø292.29	&Ø4.687	-Ø5.134	-Ø3.23Ø
&455.955	&Ø11.987	&Ø91.986	&Ø2ØØ.3Ø	&Ø292.28	&Ø4.626	-Ø4.Ø77	-Ø3.252
&455.955	&Ø12.Ø57	&Ø92.Ø54	&Ø2ØØ.2Ø	&Ø292.25	&Ø4.578	-Ø4.374	-Ø3.252
&456.Ø42	&Ø12.172	&Ø92.17Ø	&2ØØ.Ø83	&Ø292.25	&Ø4.614	&.Ø75	-Ø3.252
&456.Ø64	&Ø12.195	&Ø92.194	&Ø2ØØ.Ø6	&Ø292.26	&Ø4.681	-Ø3.372	-Ø3.23Ø
&456.Ø64	&Ø12.133	&Ø92.131	&Ø2ØØ.16	&Ø292.29	&Ø4.712	-Ø3.798	-Ø3.252
&456.1Ø8	&Ø12.119	&Ø92.118	&Ø2ØØ.15	&Ø292.26	&Ø4.626	-Ø7.3Ø3	-Ø3.23Ø
&456.152	&Ø12.288	&Ø92.285	&Ø199.92	&Ø292.21	&Ø4.565	-Ø8.157	-Ø3.252
&456.3Ø6	&Ø12.385	&Ø92.384	&Ø199.83	&292.214	&Ø4.6Ø8	-Ø1.298	-Ø3.252
&456.35Ø	&12.379	&Ø92.379	&Ø199.85	&Ø292.23	&Ø4.7ØØ	-4.879	-Ø3.274
&456.328	&Ø12.313	&Ø92.313	&Ø199.94	&292.253	&Ø4.712	-Ø5.412	-Ø3.252
&456.262	&Ø12.285	&Ø92.282	&Ø199.92	&Ø292.2Ø	&Ø4.62Ø	-4.Ø71	-Ø3.252
&456.372	&Ø12.439	&Ø92.439	&Ø199.73	&Ø292.17	&Ø4.578	-Ø5.936	-Ø3.23Ø
&456.46Ø	&12.511	&Ø92.51Ø	&199.657	&Ø292.16	&Ø4.645	&.Ø42	-Ø3.23Ø
&456.438	&Ø12.5Ø6	&Ø92.5Ø5	&Ø199.68	&Ø292.18	&Ø4.718	-Ø4.271	-Ø3.23Ø
&456.416	&Ø12.48Ø	&92.48Ø	&199.723	&Ø292.2Ø	&Ø4.7Ø6	-Ø2.431	-Ø3.274
&456.416	&Ø12.488	&Ø92.486	&Ø199.65	&Ø292.13	&Ø4.639	-Ø2.113	-Ø3.274

ØØØØØØ

Run 2 Leg 4 1/21/66 Printed 6/6/66

BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
&455.713	&Ø12.191	&Ø92.189	&Ø2Ø2.4Ø	&Ø294.59	&4.327	-Ø5.494	-Ø8.921
&455.361	&Ø11.965	&Ø91.964	&Ø2Ø2.67	&Ø294.64	&Ø4.346	-Ø5.395	-Ø8.987
&454.438	&Ø11.727	&Ø91.725	&Ø2Ø2.95	&294.675	&Ø4.346	-Ø5.494	-Ø8.399
&454.131	&Ø11.821	&Ø91.821	&Ø2Ø3.11	&Ø294.93	&Ø4.364	-Ø6.Ø72	-Ø8.987
&452.1Ø9	&Ø9.65Ø	&89.648	&Ø2Ø3.18	&Ø292.83	&4.376	-Ø5.368	-Ø9.Ø53
&451.89Ø	&9.44Ø	&89.44Ø	&2Ø3.184	&Ø292.62	&Ø4.333	-Ø5.813	-Ø9.Ø53
&451.846	&Ø9.3Ø8	&Ø89.3Ø8	&Ø2Ø3.12	&Ø292.42	&Ø4.358	-Ø5.196	-Ø9.Ø31
&451.934	&Ø9.371	&Ø89.368	&Ø2Ø3.Ø6	&Ø292.43	&Ø4.388	-Ø5.516	-Ø9.Ø31
&451.956	&Ø9.5Ø7	&Ø89.5Ø6	&Ø2Ø2.96	&Ø292.46	&Ø4.388	-Ø5.7Ø1	-Ø9.Ø31
&452.263	&Ø9.8Ø7	&Ø89.8Ø5	&Ø2Ø2.68	&Ø292.48	&Ø4.364	-Ø6.523	-Ø8.965
&452.153	&Ø9.555	&Ø89.555	&Ø2Ø2.37	&Ø291.93	&Ø4.395	-Ø5.457	-Ø8.987
&452.241	&Ø9.724	&Ø89.723	&Ø2Ø2.Ø9	&Ø291.81	&Ø4.462	-Ø5.486	-Ø9.Ø31
&452.241	&Ø9.642	&Ø89.64Ø	&2Ø1.789	&Ø291.42	&Ø4.437	-Ø5.911	-Ø8.943
&452.681	&Ø1Ø.2Ø6	&Ø9Ø.2Ø3	&Ø2Ø1.39	&Ø291.59	&Ø4.413	-Ø5.7Ø1	-Ø8.965
&453.164	&Ø1Ø.771	&Ø9Ø.769	&Ø2ØØ.95	&Ø291.72	&Ø4.4Ø1	-Ø5.953	-Ø123.48
&453.625	&Ø11.221	&Ø91.219	&Ø2ØØ.59	&Ø291.81	&Ø4.413	-Ø5.539	-Ø353.47
&454.131	&Ø11.769	&Ø91.769	&Ø2ØØ.3Ø	&Ø292.Ø7	&Ø4.425	-Ø5.339	-Ø357.78
&46Ø.327	&Ø17.748	&Ø97.748	&Ø2ØØ.Ø8	&Ø297.83	&Ø4.431	-Ø8.199	-Ø358.57
&453.625	&Ø11.Ø24	&Ø91.Ø22	&Ø199.9Ø	&Ø29Ø.92	&Ø4.462	-Ø5.646	-Ø358.55
&448.418	&Ø6.Ø22	&Ø86.Ø2Ø	&199.759	&Ø285.77	&Ø4.462	-Ø7.Ø17	-Ø358.57
&454.9ØØ	&12.288	&Ø92.285	&Ø199.54	&Ø291.83	&Ø4.388	-Ø5.4Ø5	-Ø358.5Ø
&453.779	&Ø11.484	&Ø91.483	&Ø199.39	&Ø29Ø.88	&4.364	-Ø5.471	-Ø358.52
&453.713	&Ø11.393	&Ø91.392	&Ø199.53	&Ø29Ø.92	&Ø4.5Ø4	-Ø6.274	-Ø358.57
&453.56Ø	&11.113	&Ø91.112	&Ø199.78	&Ø29Ø.89	&Ø4.51Ø	-5.995	-Ø358.55
&453.472	&Ø11.176	&Ø91.176	&Ø199.66	&Ø29Ø.84	&Ø4.388	-Ø5.733	-Ø358.5Ø
&453.933	&Ø11.642	&Ø91.64Ø	&199.292	&Ø29Ø.93	&Ø4.333	-Ø5.5Ø9	-Ø358.52
&453.839	&Ø11.529	&Ø91.527	&Ø199.21	&Ø29Ø.73	&Ø4.431	-Ø5.862	-Ø358.52
&453.713	&Ø11.329	&Ø91.329	&Ø199.35	&Ø29Ø.68	&Ø4.553	-Ø5.92Ø	-358.528
&454.614	&Ø11.284	&Ø91.283	&Ø199.38	&29Ø.662	&Ø4.462	-Ø5.464	-Ø357.71
&454.878	&Ø11.497	&Ø91.494	&Ø199.13	&Ø29Ø.63	&Ø4.37Ø	-5.593	-Ø355.43
&455.Ø98	&Ø11.716	&Ø91.714	&Ø198.94	&Ø29Ø.66	&Ø4.388	-Ø5.717	-Ø356.66
&455.164	&Ø11.784	&Ø91.782	&Ø198.9Ø	&Ø29Ø.69	&4.535	-Ø5.353	-Ø357.38
&455.2Ø8	&Ø11.783	&Ø91.782	&Ø198.93	&Ø29Ø.71	&Ø4.529	-Ø5.569	-Ø355.97
&455.164	&Ø11.776	&Ø91.774	&Ø198.93	&Ø29Ø.71	&Ø4.419	-Ø6.Ø89	-Ø355.29
&455.2Ø8	&Ø11.827	&Ø91.826	&Ø198.85	&Ø29Ø.67	&Ø4.37Ø	-5.646	-Ø355.47
&455.186	&Ø11.799	&Ø91.799	&Ø198.91	&29Ø.7Ø9	&Ø4.48Ø	-5.547	-Ø357.1Ø
&455.Ø54	&Ø11.586	&Ø91.585	&Ø199.16	&29Ø.745	&Ø4.565	-Ø5.846	-Ø356.66
&454.79Ø	&11.347	&Ø91.346	&Ø199.4Ø	&Ø29Ø.75	&Ø4.541	-Ø6.1Ø6	-Ø355.6Ø
&454.724	&Ø11.255	&Ø91.255	&Ø199.49	&29Ø.745	&Ø4.456	-Ø5.593	-Ø354.92
&454.7Ø2	&Ø11.241	&Ø91.241	&Ø199.51	&Ø29Ø.75	&Ø4.4Ø1	-Ø5.419	-Ø356.Ø8
&454.5Ø4	&Ø1Ø.9Ø3	&Ø9Ø.9Ø1	&Ø199.89	&Ø29Ø.79	&Ø4.498	-Ø5.449	-Ø357.42

&453.757	&010.060	&90.058	&0200.55	&290.608	&04.462	-05.822	-0355.49
&453.735	&010.164	&090.162	&0200.45	&0290.61	&04.352	-05.749	-0355.93
&453.669	&010.118	&090.118	&0200.52	&0290.64	&04.456	-05.911	-0357.73
&453.450	&9.731	&089.731	&0200.82	&0290.55	&04.557	-05.353	-0339.28
&453.252	&09.510	&89.508	&0200.98	&0290.49	&4.541	-04.898	-0359.40
&453.186	&09.499	&089.497	&0200.95	&0290.45	&04.456	-06.328	-0358.08
&453.230	&9.647	&089.646	&0200.85	&0290.49	&04.449	-06.880	-358.000
&453.208	&09.570	&89.569	&0200.94	&0290.51	&04.504	-06.768	-0339.78
&453.032	&09.373	&089.371	&0201.08	&0290.45	&04.474	-06.364	-0358.33
&452.966	&09.365	&089.363	&0201.06	&0290.42	&04.443	-06.639	-0355.82
&453.120	&9.566	&089.566	&0200.91	&0290.47	&04.474	-05.339	-0354.90
&453.252	&09.624	&089.624	&0200.88	&290.503	&04.492	-06.533	-0355.34
&453.274	&09.625	&089.624	&0200.88	&0290.50	&04.510	-6.211	-0356.48
&453.252	&09.634	&089.632	&0200.87	&0290.50	&04.474	-05.434	-0356.24
&453.516	&09.910	&89.909	&0200.63	&0290.54	&04.456	-06.072	-0356.02
&453.801	&010.311	&090.310	&200.319	&0290.63	&4.462	-05.717	-0357.07
&453.955	&010.591	&090.590	&200.086	&0290.67	&04.504	-05.554	-0130.52
&454.037	&010.722	&090.720	&199.979	&0290.69	&04.510	-6.115	-03.538
&454.175	&010.809	&090.807	&0199.89	&0290.70	&04.504	-06.411	-05.933
&454.438	&011.063	&091.063	&0199.64	&0290.71	&04.449	-06.337	-06.438
&454.614	&011.317	&091.316	&0199.41	&0290.72	&04.498	-05.585	-08.767
&454.614	&011.346	&091.346	&0199.40	&0290.75	&4.590	-5.274	-011.997
&454.614	&011.216	&091.214	&0199.53	&0290.75	&04.553	-05.854	-013.425
&454.592	&011.220	&91.219	&0199.51	&0290.73	&04.474	-05.840	-013.030
&454.702	&011.367	&091.365	&0199.36	&0290.72	&04.443	-06.176	-013.997
&454.680	&11.341	&091.340	&199.421	&0290.76	&04.510	-5.733	-015.381
&454.526	&011.093	&091.090	&199.652	&0290.74	&04.541	-06.467	-017.622
&454.417	&010.986	&090.986	&0199.71	&0290.70	&04.517	-05.593	-020.676
&454.417	&011.050	&91.049	&0199.64	&0290.69	&04.437	-05.995	-022.742
&454.438	&011.108	&091.107	&0199.62	&0290.73	&04.395	-06.620	-24.170
&454.329	&010.821	&090.818	&0199.89	&0290.71	&04.468	-07.202	-026.763
&453.999	&010.557	&090.555	&0200.11	&0290.60	&04.498	-05.457	-0205.57
&453.955	&010.420	&90.417	&0200.22	&290.638	&04.474	-05.516	-0358.74
&453.823	&010.400	&90.398	&0200.22	&0290.62	&04.468	-05.765	-0358.72
&453.977	&010.643	&090.643	&0200.03	&0290.68	&04.413	-06.038	-0358.13
&454.021	&010.673	&090.673	&0200.04	&0290.71	&04.523	-05.532	-0358.74
&453.801	&010.320	&90.319	&0200.36	&0290.68	&04.633	-05.065	-0358.77
&453.757	&010.237	&090.236	&0200.39	&0290.63	&04.547	-05.569	-0358.83
&453.977	&010.638	&090.637	&0200.05	&0290.69	&04.437	-04.904	-0358.81
&454.219	&010.838	&090.838	&0199.91	&0290.75	&04.510	-4.984	-0358.77
&454.131	&010.613	&090.612	&0200.08	&0290.70	&04.553	-05.126	-0358.79
&453.889	&010.453	&090.453	&0200.17	&0290.63	&4.523	-05.361	-0358.79
&454.065	&010.720	&90.720	&199.946	&0290.66	&04.437	-05.813	-0358.79
&454.263	&010.995	&090.994	&0199.74	&0290.73	&04.498	-05.196	-0358.81
&454.329	&011.021	&091.019	&0199.73	&0290.75	&04.547	-05.245	-0358.85
&454.241	&010.984	&090.983	&0199.76	&0290.74	&04.480	-4.997	-0358.79
&454.526	&011.228	&091.228	&0199.49	&290.717	&04.401	-05.239	-0358.77
&454.658	&011.403	&091.401	&0199.33	&0290.73	&04.504	-05.346	-0358.79
&454.746	&011.415	&091.414	&0199.32	&0290.74	&04.590	-4.885	-0358.77
&454.592	&011.432	&091.431	&0199.29	&0290.72	&04.565	-04.931	-0358.90

8454.988	8Ø11.682	8Ø91.681	8Ø199.Ø2	8Ø29Ø.7Ø	8Ø4.419	-Ø4.944	-Ø358.81
8455.Ø32	8Ø11.635	8Ø91.634	8Ø199.11	8Ø29Ø.74	8Ø4.59Ø	-5.5Ø1	-Ø358.79
8454.878	8Ø11.395	8Ø91.392	8Ø199.35	8Ø29Ø.74	8Ø4.663	-Ø5.479	-Ø358.85
8454.724	8Ø11.323	8Ø91.321	8Ø199.41	8Ø29Ø.73	8Ø4.565	-Ø5.Ø85	-Ø358.83
8454.724	8Ø11.341	8Ø91.34Ø	8199.374	8Ø29Ø.71	8Ø4.474	-Ø4.781	-Ø358.85
8454.7Ø2	8Ø11.328	8Ø91.327	8Ø199.42	8Ø29Ø.75	84.486	-Ø5.175	-Ø358.81
8454.417	8Ø1Ø.987	8Ø9Ø.986	8Ø199.78	8Ø29Ø.77	8Ø4.639	-Ø5.457	-Ø358.87
8454.131	8Ø1Ø.582	8Ø9Ø.582	8Ø2ØØ.11	8Ø29Ø.69	8Ø4.639	-Ø5.12Ø	-358.792
8453.911	8Ø1Ø.365	8Ø9Ø.363	8Ø2ØØ.28	8Ø29Ø.64	8Ø4.529	-Ø5.878	-Ø358.85
8453.823	8Ø1Ø.266	8Ø9Ø.264	8Ø2ØØ.36	8Ø29Ø.62	8Ø4.474	-Ø6.211	-Ø358.83
8453.669	8Ø1Ø.Ø57	8Ø9Ø.Ø55	8Ø2ØØ.52	8Ø29Ø.58	8Ø4.529	-Ø5.457	-Ø358.83
8453.318	8Ø9.686	8Ø89.684	8Ø2ØØ.8Ø	8Ø29Ø.49	84.645	-Ø6.429	-Ø358.85
8453.Ø98	8Ø9.399	8Ø89.398	8Ø2Ø1.Ø1	8Ø29Ø.41	84.626	-Ø5.434	-Ø358.94
8453.Ø54	8Ø9.355	8Ø89.354	8Ø2Ø1.Ø2	8Ø29Ø.38	8Ø4.5Ø4	-Ø5.245	-Ø358.83
8453.164	8Ø9.555	8Ø89.555	8Ø2ØØ.91	8Ø29Ø.46	8Ø4.456	-Ø5.113	-Ø358.81
8453.164	8Ø9.578	8Ø89.577	8Ø2ØØ.92	8Ø29Ø.5Ø	84.593	-5.Ø24	-Ø358.85
8453.Ø1Ø	89.271	8Ø89.269	8Ø2Ø1.13	8Ø29Ø.4Ø	8Ø4.669	-Ø5.Ø78	-Ø358.85
8452.9ØØ	89.167	8Ø89.165	8Ø2Ø1.18	8Ø29Ø.35	8Ø4.596	-Ø5.Ø18	-Ø358.83
8454.263	8Ø9.Ø53	8Ø99.Ø53	8Ø2ØØ.9Ø	8Ø299.95	8Ø4.449	-Ø5.Ø71	-Ø358.85
8468.545	8Ø22.Ø54	8Ø112.Ø5	8Ø2ØØ.71	8Ø312.76	8Ø4.474	-Ø6.ØØ3	-Ø358.79
8329.Ø41	8Ø2.435	8Ø332.43	8Ø2ØØ.79	8Ø173.23	84.694	-Ø5.317	-Ø358.87
83Ø3.Ø25	8Ø1Ø.1Ø3	8Ø3ØØ.1Ø	8Ø2ØØ.84	8Ø14Ø.95	8Ø4.712	-Ø5.161	-Ø358.92
83Ø3.42Ø	81Ø.532	8Ø3ØØ.53	8Ø2ØØ.46	8Ø14Ø.99	8Ø4.5Ø4	-Ø5.196	-Ø358.92
83Ø3.882	8Ø11.Ø53	8Ø3Ø1.Ø5	8Ø2ØØ.ØØ	8Ø141.Ø6	8Ø4.456	-Ø5.434	-Ø358.9Ø
83Ø4.146	8Ø11.292	8Ø3Ø1.28	8Ø199.81	8Ø141.1Ø	84.62Ø	-5.346	-Ø358.9Ø
83Ø4.233	8Ø11.382	8Ø3Ø1.38	8199.718	8Ø141.Ø9	8Ø4.724	-Ø5.397	-Ø358.9Ø
83Ø4.453	8Ø11.617	8Ø3Ø1.61	8Ø199.43	8Ø141.Ø5	8Ø4.645	-Ø5.331	-Ø358.9Ø
83Ø5.ØØ2	8Ø12.Ø15	8Ø3Ø2.Ø1	8Ø198.98	8Ø14Ø.99	8Ø4.486	-Ø4.984	-Ø358.92
83Ø5.31Ø	812.288	8Ø3Ø2.28	8Ø198.66	8Ø14Ø.94	8Ø4.474	-Ø4.833	-Ø358.93
83Ø5.42Ø	812.378	8Ø3Ø2.37	8Ø198.56	8Ø14Ø.94	8Ø4.614	-Ø4.911	-Ø358.94
83Ø5.464	8Ø12.413	8Ø3Ø2.41	8Ø198.5Ø	8Ø14Ø.91	8Ø4.675	-Ø5.295	-Ø358.9Ø
83Ø5.652	8Ø12.578	8Ø3Ø2.57	8Ø198.27	814Ø.847	8Ø4.578	-Ø5.134	-Ø358.96
83Ø5.881	8Ø12.759	8Ø3Ø2.75	8Ø198.Ø4	8Ø14Ø.8Ø	8Ø4.51Ø	-4.833	-Ø358.98
83Ø5.969	8Ø12.814	8Ø3Ø2.81	8Ø197.99	814Ø.8Ø3	8Ø4.535	-Ø5.Ø24	-Ø359.Ø3
83Ø5.947	8Ø12.813	8Ø3Ø2.81	8Ø198.Ø1	8Ø14Ø.82	8Ø4.572	-Ø5.253	-Ø359.Ø1
83Ø5.881	8Ø12.732	8Ø3Ø2.73	8Ø198.1Ø	8Ø14Ø.83	8Ø4.565	-Ø5.781	-Ø358.93
83Ø5.859	8Ø12.71Ø	83Ø2.7Ø9	8Ø198.13	814Ø.839	8Ø4.547	-Ø5.Ø85	-Ø359.Ø1
83Ø5.9Ø3	8Ø12.7Ø8	8Ø3Ø2.7Ø	8Ø198.12	8Ø14Ø.82	8Ø4.541	-Ø4.971	-Ø358.98
83Ø5.815	8Ø12.616	8Ø3Ø2.61	8Ø198.26	8Ø14Ø.87	8Ø4.535	-Ø5.Ø18	-Ø359.Ø3
83Ø5.5Ø8	8Ø12.389	8Ø3Ø2.38	8Ø198.59	8Ø14Ø.97	8Ø4.523	-Ø5.Ø45	-Ø358.94
83Ø5.2ØØ	812.187	8Ø3Ø2.18	8Ø198.85	8Ø141.Ø4	8Ø4.559	-Ø5.Ø73	-Ø358.92
83Ø5.ØØ2	8Ø11.982	8Ø3Ø1.98	8Ø199.12	8Ø141.1Ø	8Ø4.596	-Ø5.288	-Ø358.92
83Ø4.673	8Ø11.735	8Ø3Ø1.73	8Ø199.42	8Ø141.16	8Ø4.565	-Ø5.Ø78	-Ø358.87
83Ø4.387	8Ø11.426	8Ø3Ø1.42	8Ø199.77	8141.193	8Ø4.535	-Ø4.991	-Ø358.85
83Ø3.948	8Ø11.Ø3Ø	83Ø1.Ø28	8Ø2ØØ.15	8Ø141.18	8Ø4.523	-Ø5.295	-Ø358.85
83Ø3.574	8Ø1Ø.622	8Ø3ØØ.62	8Ø2ØØ.49	8Ø141.11	8Ø4.553	-Ø5.346	-Ø358.85
83Ø3.333	8Ø1Ø.289	8Ø3ØØ.28	8Ø2ØØ.74	8Ø141.Ø3	8Ø4.614	-Ø5.14Ø	-358.857
83Ø3.113	8Ø1Ø.Ø73	8Ø3ØØ.Ø7	8Ø2ØØ.9Ø	8Ø14Ø.97	8Ø4.59Ø	-5.725	-Ø358.9Ø
83Ø3.113	8Ø1Ø.Ø15	8Ø3ØØ.Ø1	8Ø2ØØ.93	8Ø14Ø.95	8Ø4.541	-Ø5.813	-Ø358.87
83Ø3.Ø47	8Ø9.992	8Ø299.99	82ØØ.954	8Ø14Ø.94	8Ø4.523	-Ø5.346	-Ø358.9Ø

8302.871	809.705	80299.70	80201.17	80140.87	804.584	-05.600	-358.901
8302.805	809.648	80299.64	80201.19	8140.836	804.553	-05.217	-0358.90
8302.849	809.854	80299.85	80201.02	80140.87	804.529	-05.310	-358.879
8303.047	8010.145	80300.14	80200.81	80140.96	84.498	-05.295	-0358.85
8303.289	8010.367	80300.36	80200.64	80141.01	804.559	-05.397	-0358.87
8303.420	810.5[illegible]9	80300.56	80200.49	80141.06	804.596	-05.509	-0358.92
8303.618	8010.772	80300.77	8200.514	80141.08	804.596	-05.539	-0358.83
8303.860	811.004	80301.00	80200.09	80141.09	804.590	-5.310	-358.879
8304.058	8011.188	80301.18	80199.92	80141.11	804.596	-05.920	-358.813
8304.146	8011.307	80301.30	80199.80	80141.11	804.645	-05.903	-0358.87
8304.343	8011.465	80301.46	80199.63	80141.10	804.608	-05.837	-0358.85
8304.475	8011.589	80301.58	80199.52	8141.108	804.608	-06.176	-0358.92
8304.453	8011.621	80301.61	80199.48	80141.10	804.602	-06.255	-0358.85
8304.497	8011.619	80301.61	80199.50	80141.12	804.608	-05.600	-358.879
8304.431	8011.550	8301.550	8199.591	80141.14	804.559	-05.532	-0358.85
8304.299	8011.388	80301.38	80199.75	80141.14	804.572	-05.733	-0358.85
8304.058	8011.146	80301.14	80199.99	80141.14	804.590	-6.158	-0358.90
8303.970	811.032	80301.03	80200.09	80141.12	804.578	-06.337	-0358.87
8303.926	8011.008	80301.00	80200.11	80141.12	804.517	-06.220	-358.879
8303.882	8010.917	80300.91	80200.21	80141.12	804.559	-05.749	-0358.85
8303.728	8010.763	80300.76	80200.36	8141.122	804.608	-05.773	-0358.85
8303.552	8010.585	80300.58	80200.51	80141.09	804.614	-05.608	-0358.85
8303.420	810.468	80300.46	80200.59	80141.06	804.559	-05.509	-0358.90
8303.442	8010.449	80300.44	80200.61	8141.059	804.535	-05.686	-0358.83
8303.376	8010.378	80300.37	80200.67	80141.05	804.559	-05.608	-0358.90
8303.267	8010.233	80300.23	80200.79	80141.02	804.596	-05.346	-0358.85
8303.157	8010.107	80300.10	80200.88	8140.985	804.608	-05.569	-0358.85
8303.047	8010.005	80300.00	80200.94	80140.94	804.565	-05.616	-0358.87
8303.047	809.977	80299.97	80200.96	80140.93	804.553	-05.532	-0358.85
8303.069	8010.079	80300.07	80200.86	80140.94	804.529	-05.623	-0358.90
8303.157	8010.217	80300.21	80200.78	80140.90	804.572	-06.185	-0358.87
8303.157	8010.194	80300.19	80200.81	80141.00	804.645	-05.353	-0358.87
8303.135	8010.195	80300.19	80200.79	80140.98	804.645	-05.405	-0358.90
8303.333	8010.504	80300.50	80200.54	80141.05	804.559	-05.390	-358.879
8303.574	8010.716	80300.71	80200.36	80141.08	804.559	-05.686	-0358.81
8303.684	8010.858	80300.85	80200.24	80141.10	804.584	-05.196	-0358.90
8303.860	810.998	80300.99	80200.11	80141.11	804.614	-05.217	-0358.85
8304.036	8011.153	80301.15	80199.95	80141.10	804.596	-05.331	-0358.87
8304.146	8011.293	80301.29	80199.81	80141.11	804.553	-05.259	-0358.87
8304.211	8011.344	80301.34	80199.77	80141.12	804.541	-05.773	-0358.92
8304.233	8011.346	80301.34	80199.77	80141.12	804.541	-05.970	-358.901
8304.211	8011.336	80301.33	80199.80	8141.136	804.565	-06.255	-0358.87
8304.167	8011.238	80301.23	80199.90	80141.14	804.584	-05.562	-0358.87
8304.102	8011.147	80301.14	80199.98	80141.13	84.572	-05.701	-0358.92
8304.080	811.130	8301.130	8199.995	80141.12	804.498	-06.132	-0358.85
8304.124	8011.136	80301.13	80199.97	80141.11	804.547	-05.600	-358.879
8304.080	811.086	80301.08	80200.04	80141.13	804.675	-06.467	-0358.87
8304.036	8011.045	80301.04	80200.05	80141.09	804.651	-05.608	-0358.85
8304.233	8011.318	80301.31	80199.75	80141.07	804.523	-05.639	-0358.90
8304.475	8011.546	80301.54	80199.53	80141.08	804.547	-06.106	-0358.92
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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&3Ø4.541	&Ø11.649	&Ø3Ø1.64	&Ø199.42	&Ø141.Ø7	&Ø4.657	-Ø5.281	-Ø358.94
&3Ø4.871	&Ø11.915	&Ø3Ø1.91	&Ø199.1Ø	&Ø141.Ø1	&Ø4.59Ø	-5.454	-Ø358.9Ø
&3Ø5.266	&Ø12.235	&Ø3Ø2.23	&Ø198.72	&Ø14Ø.95	&Ø4.535	-Ø5.313	-Ø358.92
&3Ø5.552	&Ø12.465	&Ø3Ø2.46	&Ø198.42	&Ø14Ø.89	&Ø4.529	-Ø5.375	-Ø358.96
&3Ø5.684	&Ø12.571	&Ø3Ø2.56	&Ø198.3Ø	&Ø14Ø.87	&Ø4.572	-Ø4.918	-Ø358.96
&3Ø5.7Ø6	&Ø12.585	&Ø3Ø2.58	&Ø198.28	&Ø14Ø.86	&Ø4.596	-Ø5.986	-Ø358.94
&3Ø5.771	&Ø12.648	&Ø3Ø2.64	&Ø198.18	&Ø14Ø.82	&Ø4.59Ø	-5.316	-358.989
&3Ø5.991	&Ø12.851	&Ø3Ø2.34	&Ø197.92	&Ø14Ø.77	&Ø4.486	-Ø4.891	-Ø359.Ø3
&3Ø6.123	&Ø12.928	&Ø3Ø2.92	&Ø197.83	&Ø14Ø.76	&4.529	-Ø5.274	-Ø359.Ø1
&3Ø6.Ø57	&Ø12.8Ø5	&Ø3Ø2.8Ø	&Ø198.Ø2	&Ø14Ø.82	&Ø4.651	-Ø5.5Ø9	-Ø359.Ø1
&3Ø5.859	&Ø12.662	&Ø3Ø2.65	&198.185	&Ø14Ø.84	&Ø4.6Ø2	-Ø5.8Ø5	-Ø359.Ø1
&3Ø5.815	&Ø12.624	&Ø3Ø2.62	&Ø198.22	&Ø14Ø.84	&Ø4.492	-Ø5.168	-Ø359.Ø1
&3Ø5.793	&Ø12.586	&Ø3Ø2.58	&Ø198.28	&Ø14Ø.87	&Ø4.474	-Ø5.419	-Ø358.96
&3Ø5.64Ø	&Ø12.49Ø	&3Ø2.489	&Ø198.43	&Ø14Ø.92	&Ø4.578	-Ø5.6ØØ	-359.Ø11
&3Ø5.398	&Ø12.311	&Ø3Ø2.31	&Ø198.69	&Ø141.ØØ	&Ø4.6Ø2	-Ø5.134	-Ø358.96
&3Ø5.156	&Ø12.137	&Ø3Ø2.13	&Ø198.92	&Ø141.Ø6	&Ø4.565	-Ø5.147	-Ø358.9Ø
&3Ø5.134	&Ø12.Ø74	&Ø3Ø2.Ø7	&Ø198.99	&Ø141.Ø6	&Ø4.51Ø	-5.837	-Ø358.96
&3Ø5.Ø24	&Ø11.974	&Ø3Ø1.97	&Ø199.14	&Ø141.12	&Ø4.553	-Ø5.346	-Ø358.92
&3Ø4.673	&Ø11.694	&Ø3Ø1.69	&Ø199.48	&Ø141.17	&Ø4.6Ø2	-Ø5.639	-Ø358.92
&3Ø4.4Ø9	&Ø11.461	&Ø3Ø1.45	&Ø199.72	&Ø141.18	&Ø4.572	-Ø5.3Ø3	-Ø358.9Ø
&3Ø4.277	&Ø11.357	&Ø3Ø1.35	&Ø199.81	&Ø141.17	&Ø4.474	-Ø5.397	-Ø358.9Ø
&3Ø4.124	&Ø11.157	&Ø3Ø1.15	&Ø2ØØ.Ø2	&Ø141.18	&4.541	-Ø5.353	-Ø358.85
&3Ø3.816	&Ø1Ø.846	&Ø3ØØ.84	&Ø2ØØ.3Ø	&Ø141.14	&Ø4.62Ø	-5.427	-Ø358.85
&3Ø3.64Ø	&Ø1Ø.635	&Ø3ØØ.63	&Ø2ØØ.47	&Ø141.1Ø	&Ø4.59Ø	-5.383	-Ø358.87
&3Ø3.464	&Ø1Ø.422	&Ø3ØØ.42	&Ø2ØØ.64	&Ø141.Ø6	&Ø4.547	-Ø5.646	-Ø358.87
&3Ø3.2Ø1	&Ø1Ø.Ø32	&Ø3ØØ.Ø3	&Ø2ØØ.93	&Ø14Ø.96	&Ø4.596	-Ø5.757	-Ø358.9Ø
&3Ø2.893	&Ø9.7Ø6	&Ø299.7Ø	&Ø2Ø1.17	&Ø14Ø.87	&Ø4.6Ø2	-Ø5.441	-Ø358.92
&3Ø2.783	&Ø9.52Ø	&299.517	&Ø2Ø1.31	&Ø14Ø.83	&Ø4.572	-Ø4.944	-Ø358.94
&3Ø2.476	&Ø9.25Ø	&299.248	&Ø2Ø1.55	&Ø14Ø.8Ø	&Ø4.547	-Ø5.741	-Ø358.94
&3Ø2.1Ø2	&Ø8.815	&Ø298.81	&Ø2Ø1.97	&Ø14Ø.79	&4.59Ø	-5.678	-Ø358.98
&3Ø1.685	&Ø8.38Ø	&298.378	&Ø2Ø2.44	&Ø14Ø.82	&4.596	-Ø5.494	-Ø359.Ø3
&3Ø1.377	&Ø8.116	&Ø298.11	&Ø2Ø2.73	&Ø14Ø.85	&Ø4.51Ø	-5.12Ø	-359.Ø55
&3Ø1.245	&Ø7.982	&Ø297.98	&Ø2Ø2.89	&Ø14Ø.87	&Ø4.437	-Ø5.231	-Ø359.Ø7
&3ØØ.959	&Ø7.744	&Ø297.74	&Ø2Ø3.21	&Ø14Ø.95	&Ø4.492	-Ø5.593	-Ø359.Ø9
&3ØØ.41Ø	&7.3ØØ	&297.298	&Ø2Ø3.74	&Ø141.Ø4	&Ø4.547	-Ø5.887	-Ø359.Ø7
&3ØØ.125	&Ø17.Ø47	&Ø297.Ø4	&Ø2Ø4.Ø2	&Ø141.Ø7	&Ø4.535	-Ø6.132	-Ø359.14
&3ØØ.1Ø3	&Ø17.Ø68	&Ø297.Ø6	&Ø2Ø3.96	&Ø141.Ø3	&Ø4.431	-Ø6.542	-Ø359.Ø9
&3ØØ.1Ø3	&Ø7.138	&Ø297.13	&Ø2Ø3.89	&Ø141.Ø3	&Ø4.449	-Ø5.524	-Ø359.Ø7
&3ØØ.Ø59	&Ø16.954	&Ø296.95	&Ø2Ø4.14	&Ø141.1Ø	&4.59Ø	-5.822	-Ø359.18
&299.861	&Ø16.83Ø	&296.829	&Ø2Ø4.26	&141.Ø89	&Ø4.596	-Ø5.878	-Ø359.16
&299.949	&Ø16.962	&Ø296.96	&2Ø4.Ø71	&Ø141.Ø3	&Ø4.5Ø4	-Ø6.Ø72	-Ø359.12
&3ØØ.168	&Ø17.147	&Ø297.14	&Ø2Ø3.87	&Ø141.Ø2	&Ø4.48Ø	-6.246	-Ø359.Ø9
&3ØØ.146	&Ø7.153	&Ø297.15	&Ø2Ø3.81	&Ø14Ø.97	&Ø4.547	-Ø5.6Ø8	-Ø359.Ø7
&3ØØ.234	&Ø7.225	&Ø297.22	&Ø2Ø3.7Ø	&14Ø.924	&Ø4.59Ø	-5.9Ø3	-Ø359.Ø7
&3ØØ.432	&Ø7.413	&Ø297.41	&Ø2Ø3.45	&Ø14Ø.86	&Ø4.541	-Ø5.516	-Ø359.Ø9
&3ØØ.696	&Ø7.596	&Ø297.59	&Ø2Ø3.11	&Ø14Ø.7Ø	&Ø4.492	-Ø5.524	-Ø359.Ø3
&3ØØ.916	&Ø7.825	&Ø297.82	&Ø2Ø2.73	&Ø14Ø.55	&Ø4.492	-Ø5.457	-Ø359.Ø3
&3Ø1.135	&Ø8.Ø36	&Ø298.Ø3	&Ø2Ø2.42	&Ø14Ø.45	&Ø4.535	-Ø5.Ø51	-Ø359.Ø1
&3Ø1.311	&Ø8.19Ø	&298.188	&Ø2Ø2.22	&Ø14Ø.41	&Ø4.614	-Ø5.346	-Ø359.Ø3
&3Ø1.553	&Ø8.413	&Ø298.41	&Ø2Ø1.95	&Ø14Ø.36	&Ø4.535	-Ø5.6Ø8	-Ø358.96

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&302.124	&09.016	&0299.01	&0201.31	&0140.33	&04.470	-05.196	-0350.90
&302.168	&09.089	&0299.08	&0201.26	&0140.35	&04.620	-5.593	-0350.92
&302.588	&09.302	&0299.30	&0201.09	&0140.39	&04.596	-05.058	-0350.90
&302.937	&09.925	&0299.92	&0200.59	&0140.51	&04.401	-04.813	-0350.92
&303.503	&010.535	&0300.53	&0200.21	&0140.74	&04.449	-04.891	-0350.87
&303.508	&010.544	&0300.54	&0200.12	&0140.66	&04.626	-04.951	-0350.87
&303.640	&010.704	&0300.70	&0199.93	&0140.64	&04.626	-04.967	-0350.87
&304.124	&011.232	&0301.23	&0199.39	&0140.63	&04.486	-05.010	-350.901
&304.629	&011.717	&0301.71	&0198.86	&0140.57	&04.449	-05.600	-350.907
&304.805	&011.901	&0301.89	&0198.68	&0140.58	&04.570	-05.741	-0350.94
&304.805	&011.882	&0301.88	&0198.73	&0140.61	&04.645	-05.217	-0350.92
&304.761	&011.826	&0301.82	&0198.80	&140.625	&04.559	-05.375	-0350.90
&304.893	&011.918	&0301.91	&0198.62	&0140.53	&04.443	-05.701	-0350.94
&305.002	&012.034	&0302.03	&0198.45	&0140.49	&4.304	-05.646	-0350.98
&304.980	&12.004	&0302.00	&0198.53	&0140.54	&04.304	-05.939	-0350.90
&304.783	&011.805	&0301.80	&0198.80	&0140.60	&04.572	-05.339	-0350.94
&304.563	&011.622	&0301.62	&0199.02	&143.641	&04.570	-06.974	-0350.94
&304.321	&011.385	&0301.38	&0199.24	&0140.63	&4.504	-05.707	-0350.94
&304.189	&011.218	&0301.21	&0199.39	&0140.60	&04.504	-05.405	-0350.92
&304.146	&011.203	&0301.20	&0199.42	&0140.62	&04.529	-06.105	-0350.94
&304.102	&011.112	&0301.11	&199.539	&0140.65	&4.504	-05.547	-0350.94
&303.860	&10.861	&0300.86	&0199.77	&140.630	&4.620	-6.030	-350.923
&303.750	&10.799	&0300.79	&0199.85	&0140.65	&4.572	-06.304	-0230.03
&303.772	&010.829	&0300.82	&0199.82	&0140.65	&04.517	-05.070	&00.073
&303.750	&10.873	&0300.87	&0199.77	&0140.64	&04.590	-5.709	-040.050
&303.706	&010.787	&0300.78	&0199.85	&0140.64	&04.504	-05.693	-0140.03
&303.706	&010.764	&0300.76	&0199.87	&0140.63	&04.535	-06.240	-020.003
&303.706	&010.829	&0300.82	&0199.79	&0140.62	&4.584	-06.003	-0100.06
&303.634	&010.875	&0300.87	&0199.75	&0140.62	&04.639	-05.259	-000.040
&303.684	&010.822	&0300.81	&0199.81	&0140.63	&04.026	-05.140	-60.075
&303.750	&10.817	&0300.81	&0199.32	&0140.64	&04.541	-05.516	-0120.03
&303.772	&010.909	&0300.90	&0199.71	&0140.62	&04.525	-05.189	-000.046
&303.772	&010.972	&0300.97	&199.657	&0140.62	&04.602	-05.046	-0100.04
&303.794	&010.954	&0300.95	&0199.67	&0140.62	&04.663	-05.616	-0100.06
&303.816	&010.906	&0300.90	&0199.70	&0140.61	&04.602	-05.502	-000.073
&303.772	&010.956	&0300.95	&0199.65	&0140.60	&04.529	-05.709	-060.051
&303.926	&011.067	&0301.06	&0199.49	&0140.56	&04.547	-05.749	-0100.02
&303.289	&010.316	&0300.31	&0199.44	&0139.76	&4.657	-05.190	-005.073
&303.267	&010.275	&0300.27	&0199.45	&.133.72	&04.657	-05.375	-040.100
&303.245	&010.259	&0300.25	&0199.50	&0139.76	&04.553	-05.693	-040.103
&303.245	&010.234	&0300.23	&0199.52	&0139.75	&04.941	-05.903	-040.070
&303.157	&010.153	&0300.15	&0199.50	&0139.65	&04.590	-5.993	-040.070
&303.113	&010.086	&0300.08	&0199.55	&0139.63	&04.600	-06.012	-060.073
&302.827	&09.760	&299.759	&0199.83	&0139.99	&04.645	-06.571	-000.095
&302.542	&09.407	&0299.40	&0199.95	&0139.36	&04.572	-06.373	-040.070
&302.300	&9.201	&0299.19	&0199.96	&0139.16	&04.480	-5.070	-00.068
&306.299	&013.183	&0303.18	&0200.02	&0143.20	&04.490	-05.995	-0120.01
&306.672	&013.498	&0303.49	&0200.30	&0143.80	&04.633	-00.430	-090.024
&306.409	&013.295	&0303.29	&0200.51	&0143.85	&04.626	-00.301	-0119.99

83Ø6.365	8Ø13.262	8Ø3Ø3.26	8Ø2ØØ.52	8Ø143.70	8Ø4.51Ø	-6.176	-Ø119.99
83Ø6.475	8Ø13.434	8Ø3Ø3.43	8Ø2ØØ.39	8Ø143.82	8Ø4.474	-Ø6.06Ø	-18Ø.ØØØ
83Ø6.419	8Ø13.464	8Ø3Ø3.46	8Ø2ØØ.37	8Ø143.83	8Ø4.553	-Ø6.255	-Ø16Ø.ØØ
83Ø6.4Ø9	8Ø13.291	8Ø3Ø3.28	8Ø2ØØ.52	8143.ØØØ	8Ø4.6Ø8	-Ø6.ØØ3	-Ø199.97
83Ø6.365	8Ø13.237	8Ø3Ø3.23	8Ø2ØØ.57	8Ø143.81	8Ø4.62Ø	-6.355	-Ø14Ø.Ø1
83Ø6.453	8Ø13.365	8Ø3Ø3.36	8Ø2ØØ.44	8143.ØØ6	8Ø4.553	-Ø5.995	-ØØØ.Ø24
83Ø6.694	8Ø13.583	8Ø3Ø3.58	8Ø2ØØ.22	8Ø143.81	8Ø4.547	-Ø5.813	-Ø12Ø.Ø1
83Ø6.76Ø	813.641	8Ø3Ø3.64	82ØØ.174	8Ø143.81	8Ø4.565	-Ø5.969	-Ø10Ø.ØØ
83Ø6.76Ø	813.599	8Ø3Ø3.59	8Ø2ØØ.2Ø	8Ø143.Ø8	84.578	-Ø5.5Ø9	-Ø99.998
83Ø6.716	8Ø13.527	8Ø3Ø3.52	8Ø2ØØ.24	8Ø143.76	8Ø4.572	-Ø5.797	-Ø159.98
83Ø6.782	8Ø13.617	83Ø3.61	8Ø2ØØ.19	8143.8Ø6	8Ø4.553	-Ø5.412	-Ø12Ø.Ø1
83Ø7.881	8Ø14.742	8Ø3Ø4.74	8Ø2ØØ.Ø6	8Ø144.ØØ	8Ø4.584	-Ø5.471	-Ø4Ø.Ø34
83Ø7.925	8Ø14.797	8Ø3Ø4.79	8Ø2ØØ.Ø3	8Ø144.Ø3	84.572	-Ø5.829	-ØØØ.ØØ2
83Ø7.9Ø3	8Ø14.8Ø2	8Ø3Ø4.8Ø	8Ø2ØØ.ØØ	8Ø144.8Ø	8Ø4.523	-Ø5.986	-Ø1ØØ.Ø4
83Ø8.Ø35	8Ø14.921	8Ø3Ø4.92	8199.896	8Ø144.81	8Ø4.486	-Ø5.741	-Ø6Ø.Ø51
83Ø8.145	8Ø15.Ø36	8Ø3Ø5.Ø3	8Ø199.8Ø	8Ø144.84	8Ø4.553	-Ø5.31Ø	-ØØ.ØØ8
83Ø8.188	8Ø15.Ø82	8Ø3Ø5.Ø8	8Ø199.78	8Ø144.86	8Ø4.59Ø	-5.936	-Ø2Ø.Ø61
83Ø8.188	8Ø15.Ø94	8Ø3Ø5.Ø9	8Ø199.76	8Ø144.Ø5	8Ø4.517	-Ø5.Ø22	-Ø1ØØ.Ø4
83Ø8.21Ø	815.145	8Ø3Ø5.14	8Ø199.71	8Ø144.85	8Ø4.486	-Ø5.Ø62	-ØØØ.ØØØ
83Ø8.254	Ø15.149	8Ø3Ø5.14	8Ø199.7Ø	8Ø144.Ø5	8Ø4.498	-Ø5.97Ø	-4Ø.1ØØ
83Ø8.188	8Ø15.Ø96	8Ø3Ø5.Ø9	8Ø199.77	8Ø144.87	8Ø4.553	-Ø5.945	-ØØØ.Ø9Ø
83Ø8.123	8Ø15.Ø18	8Ø3Ø5.Ø1	8Ø199.84	8Ø144.85	8Ø4.572	-Ø5.486	-Ø4Ø.Ø56
83Ø8.123	8Ø14.973	8Ø3Ø4.97	8Ø199.Ø7	8Ø144.84	8Ø4.547	-Ø5.693	-ØØØ.Ø73
83Ø8.Ø79	8Ø14.971	8Ø3Ø4.96	8Ø199.87	8Ø144.Ø4	8Ø4.529	-Ø5.911	-Ø4Ø.Ø56
83Ø8.Ø57	8Ø14.969	8Ø3Ø4.96	8Ø199.ØØ	8144.ØØ6	8Ø4.529	-Ø5.7Ø1	-Ø12Ø.Ø1
83Ø7.925	8Ø14.891	8Ø3Ø4.89	8199.962	8Ø144.Ø5	8Ø4.535	-Ø6.141	-ØØØ.Ø24
83Ø7.859	8Ø14.834	8Ø3Ø4.83	8Ø199.99	8Ø144.83	84.535	-Ø6.Ø46	-ØØØ.Ø46
83Ø7.9Ø3	8Ø14.839	8Ø3Ø4.83	8Ø199.98	8Ø144.81	8Ø4.5Ø4	-Ø5.781	-Ø2Ø.Ø61
83Ø7.969	8Ø14.886	8Ø3Ø4.88	8Ø199.94	8Ø144.83	8Ø4.517	-Ø6.Ø29	-Ø2Ø.Ø39
83Ø7.947	8Ø14.879	8Ø3Ø4.87	8Ø199.97	8144.ØØ6	8Ø4.553	-Ø6.328	-Ø4Ø.1ØØ
83Ø7.771	8Ø14.698	8Ø3Ø4.69	8Ø199.99	8144.6Ø7	8Ø4.529	-Ø5.928	-ØØØ.Ø46
83Ø4.1Ø2	8Ø11.167	8Ø3Ø1.16	8Ø199.92	8Ø141.Ø9	8Ø4.49Ø	-Ø5.14Ø	-2Ø.1Ø5
83Ø5.288	8Ø12.388	8Ø3Ø2.38	8Ø199.83	8142.218	8Ø4.517	-Ø5.87Ø	-1ØØ.Ø63
83Ø8.276	8Ø15.419	8Ø3Ø5.41	8Ø199.75	8Ø145.17	8Ø4.517	-Ø6.22Ø	-12Ø.Ø59
83Ø9.133	8Ø16.363	8Ø3Ø6.36	8Ø199.71	8Ø146.Ø8	84.517	-Ø6.22Ø	-2Ø.149
83Ø9.331	8Ø16.553	8Ø3Ø6.55	8Ø199.7Ø	8Ø146.25	8Ø4.535	-Ø6.176	-Ø2Ø.149
83Ø9.529	8Ø16.698	8Ø3Ø6.69	8Ø199.49	8Ø146.19	8Ø4.523	-Ø5.539	-Ø6Ø.161
83Ø9.749	8Ø16.924	8Ø3Ø6.92	8Ø199.27	8146.192	8Ø4.529	-Ø6.9Ø4	-Ø2Ø.1Ø5
83Ø9.88Ø	817.ØØ4	8Ø3Ø7.ØØ	8Ø199.22	8Ø146.22	8Ø4.547	-Ø6.319	-.132
83Ø9.9Ø2	8Ø16.987	8Ø3Ø6.98	8Ø199.27	8Ø146.25	8Ø4.547	-Ø5.928	-ØØØ.134
83Ø9.88Ø	816.962	8Ø3Ø6.96	8Ø199.28	8Ø146.24	8Ø4.517	-Ø5.885	-Ø2Ø.149
83Ø9.858	8Ø16.966	8Ø3Ø6.96	8Ø199.29	8Ø146.25	8Ø4.529	-Ø6.669	-.198
83Ø9.358	8Ø16.895	8Ø3Ø6.89	8Ø199.38	8Ø146.27	8Ø4.523	-Ø6.533	-Ø4Ø.1ØØ
83Ø9.771	8Ø16.865	8Ø3Ø6.86	8Ø199.4Ø	8Ø146.26	8Ø4.5Ø4	-Ø5.449	-.176
83Ø9.771	8Ø16.8Ø3	8Ø3Ø6.8Ø	8Ø199.49	8Ø146.29	8Ø4.51Ø	-6.328	-.198
83Ø9.551	8Ø16.613	8Ø3Ø6.61	8Ø199.72	8Ø146.33	8Ø4.535	-Ø5.789	-Ø2Ø.127
83Ø9.265	8Ø16.381	8Ø3Ø6.37	8Ø199.96	8Ø146.34	8Ø4.559	-Ø5.911	-Ø2Ø.127
83Ø9.Ø89	8Ø16.233	8Ø3Ø6.23	8Ø2ØØ.1Ø	8Ø146.34	8Ø4.49Ø	-Ø5.67Ø	-ØØØ.112

ε3Ø6.956	εØ16.136	εØ3Ø6.13	ε2ØØ.22	ε146.36	εØ4.553	-Ø5.725	-.11Ø
ε3Ø8.54Ø	ε15.664	εØ3Ø5.66	εØ2ØØ.66	ε146.321	εØ4.6Ø2	-Ø5.8Ø5	-Ø2Ø.127
ε3Ø8.254	εØ15.391	εØ3Ø5.39	ε2ØØ.849	εØ146.23	εØ4.535	-Ø5.631	-.132
ε3Ø8.298	εØ15.435	εØ3Ø5.43	εØ2ØØ.7Ø	εØ146.22	ε4.449	-Ø5.Ø46	-Ø6Ø.Ø95
ε3Ø8.254	εØ15.517	εØ3Ø5.51	εØ2ØØ.74	εØ146.26	εØ4.541	-Ø6.149	-.11Ø
ε3Ø8.188	εØ15.273	εØ3Ø5.27	εØ2ØØ.95	εØ146.22	εØ4.633	-Ø5.6ØØ	-.132
ε3Ø8.913	εØ15.147	εØ3Ø5.14	εØ2Ø1.Ø3	εØ146.17	εØ4.584	-Ø5.789	-Ø4Ø.144
ε3Ø8.1Ø1	εØ15.273	εØ3Ø5.27	εØ2ØØ.91	ε146.181	εØ4.51Ø	-5.945	-.132
ε3Ø8.123	εØ15.383	εØ3Ø5.38	εØ2ØØ.83	ε146.212	εØ4.498	-Ø5.486	-Ø2Ø.149
ε3Ø8.145	εØ15.379	εØ3Ø5.37	εØ2ØØ.84	εØ146.22	εØ4.565	-Ø5.741	-.Ø88
ε3Ø8.123	εØ15.359	εØ3Ø5.35	εØ2ØØ.85	εØ146.21	εØ4.541	-Ø5.616	-Ø6Ø.Ø95
ε3Ø8.123	εØ15.483	εØ3Ø5.48	ε2ØØ.734	εØ146.21	εØ4.492	-Ø5.427	-Ø179.97
ε3Ø8.32Ø	ε15.612	εØ3Ø5.61	εØ2ØØ.63	ε146.242	εØ4.5Ø4	-Ø5.281	-Ø2Ø.Ø83
ε3Ø8.562	εØ15.715	εØ3Ø5.71	εØ2ØØ.53	εØ146.25	εØ4.541	-Ø5.434	-Ø2Ø.1Ø8
ε3Ø8.584	εØ15.819	εØ3Ø5.81	εØ2ØØ.44	εØ146.26	εØ4.559	-Ø5.317	-Ø6Ø.Ø29
ε3Ø8.628	εØ15.9Ø1	εØ3Ø5.9Ø	εØ2ØØ.34	εØ146.24	εØ4.535	-Ø5.464	-Ø2Ø.149
ε3Ø8.87Ø	ε16.Ø77	εØ3Ø6.Ø7	εØ2ØØ.15	εØ146.23	εØ4.5Ø4	-Ø5.333	-Ø2Ø.Ø61
ε3Ø9.Ø89	εØ16.284	εØ3Ø6.28	εØ199.96	εØ146.24	εØ4.578	-Ø5.267	-Ø8Ø.Ø46
ε3Ø9.133	εØ16.4Ø4	εØ3Ø6.4Ø	εØ199.86	εØ146.26	εØ4.614	-Ø5.6Ø8	-Ø4Ø.122
ε3Ø9.287	εØ16.547	εØ3Ø6.54	εØ199.69	εØ146.23	εØ4.547	-Ø5.5Ø1	-.254
ε3Ø9.595	εØ16.743	εØ3Ø6.74	εØ199.47	εØ146.21	εØ4.486	-Ø6.373	-Ø12Ø.Ø3
ε3Ø9.7Ø5	εØ16.862	εØ3Ø6.85	εØ199.39	εØ146.25	εØ4.584	-Ø5.434	-Ø6Ø.1Ø3
ε3Ø9.792	εØ16.884	εØ3Ø6.88	εØ199.37	εØ146.26	εØ4.596	-Ø6.649	-.176
ε3Ø9.836	εØ16.965	εØ3Ø6.96	εØ199.22	εØ146.18	εØ4.529	-Ø6.678	-.242
ε31Ø.Ø56	εØ17.12Ø	ε3Ø7.12Ø	ε199.Ø58	εØ146.17	εØ4.529	-Ø6.562	-.176
ε31Ø.1ØØ	ε7.172	εØ3Ø7.17	εØ199.Ø2	εØ146.19	εØ4.633	-Ø6.943	-Ø2Ø.215
ε31Ø.144	εØ7.137	εØ3Ø7.13	εØ199.11	εØ146.25	εØ4.645	-Ø6.22Ø	-4Ø.144
ε31Ø.Ø78	εØ17.Ø6Ø	ε3Ø7.Ø6Ø	ε199.182	εØ146.24	εØ4.553	-Ø6.ØØ3	-Ø2Ø.171
ε31Ø.Ø34	εØ17.Ø54	εØ3Ø7.Ø5	εØ199.16	εØ146.21	εØ4.51Ø	-6.84Ø	-.176
ε31Ø.Ø12	εØ17.Ø77	εØ3Ø7.Ø7	εØ199.16	εØ146.23	εØ4.572	-Ø6.457	-.22Ø
ε3Ø9.8ØØ	ε16.87Ø	ε3Ø6.87Ø	ε199.457	εØ146.32	εØ4.62Ø	-6.849	-Ø4Ø.144
ε3Ø9.529	εØ16.66Ø	ε3Ø6.659	εØ199.65	εØ146.31	εØ4.584	-Ø7.71Ø	-6Ø.Ø95
ε3Ø9.529	εØ16.613	εØ3Ø6.61	εØ199.67	εØ146.28	εØ4.5Ø4	-Ø6.Ø21	-Ø2Ø.127
ε3Ø9.529	εØ16.62Ø	ε3Ø6.617	εØ199.66	εØ146.28	ε4.565	-Ø6.383	-.176
ε3Ø9.463	εØ16.562	εØ3Ø6.56	εØ199.78	εØ146.34	εØ4.6Ø8	-Ø6.337	-Ø12Ø.Ø8
ε3Ø9.3Ø9	εØ16.371	εØ3Ø6.37	ε199.976	εØ146.34	εØ4.633	-Ø6.779	-.176
ε3Ø9.199	εØ16.327	εØ3Ø6.32	εØ199.99	ε146.316	εØ4.596	-Ø6.132	-.132
ε3Ø9.375	εØ16.55Ø	ε3Ø6.549	εØ199.68	εØ146.23	εØ4.5Ø4	-Ø5.813	-Ø2Ø.127
ε3Ø9.617	εØ16.75Ø	ε3Ø6.749	εØ199.49	ε146.239	εØ4.553	-Ø7.55Ø	-6Ø.117
ε3Ø9.573	εØ16.658	εØ3Ø6.65	εØ199.67	εØ146.32	εØ4.657	-Ø6.Ø89	-.132
ε3Ø9.397	εØ16.4Ø2	εØ3Ø6.4Ø	ε199.896	εØ146.29	εØ4.669	-Ø6.Ø72	-Ø4Ø.Ø78
ε3Ø8.298	εØ15.2Ø6	εØ3Ø5.2Ø	εØ199.61	εØ144.81	εØ4.541	-Ø6.467	-.Ø88
ε3Ø7.837	εØ14.719	εØ3Ø4.71	εØ199.2Ø	εØ143.92	εØ4.492	-Ø6.176	-Ø6Ø.117
ε3Ø7.991	εØ14.944	εØ3Ø4.94	εØ199.18	εØ144.13	ε4.639	-Ø6.115	-.132
ε3Ø8.123	εØ15.Ø31	εØ3Ø5.Ø3	ε199.44Ø	ε144.47Ø	ε4.718	-Ø6.238	-Ø2Ø.Ø83
ε3Ø8.Ø57	εØ14.957	εØ3Ø4.95	εØ199.48	εØ144.44	ε4.657	-Ø5.339	-Ø8Ø.Ø9Ø
ε3Ø8.336	εØ15.461	εØ3Ø5.45	εØ199.21	εØ144.67	εØ4.523	-Ø6.123	-.176
ε3Ø8.716	εØ15.768	εØ3Ø5.76	εØ199.Ø8	εØ144.84	εØ4.541	-Ø5.8Ø5	-.176
ε3Ø8.738	εØ15.762	εØ3Ø5.76	ε199.127	εØ144.88	εØ4.626	-Ø5.7Ø1	-Ø2Ø.1Ø5
ε3Ø8.628	εØ15.541	εØ3Ø5.54	εØ199.32	εØ144.86	εØ4.651	-Ø5.646	-Ø2Ø.Ø83

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&308.496	&015.431	&0305.43	&0199.37	&0144.82	&04.523	-05.239	-.132
&308.496	&015.508	&0305.50	&0199.31	&0144.82	&04.541	-05.239	-060.117
&308.408	&015.322	&0305.32	&0199.52	&0144.84	&04.639	-05.585	-060.073
&308.123	&014.980	&0304.980	&199.819	&0144.83	&04.681	-06.232	-040.078
&307.925	&014.808	&0304.80	&0199.95	&0144.75	&04.590	-5.623	-040.073
&307.903	&014.790	&0304.788	&0199.96	&0144.75	&04.504	-05.288	-.110
&307.969	&014.783	&0304.78	&0199.97	&0144.75	&04.541	-05.600	-.088
&307.705	&014.517	&0304.51	&0200.24	&0144.76	&04.645	-05.608	-.088
&307.397	&014.272	&0304.27	&0200.44	&0144.71	&04.651	-05.631	-0120.01
&307.375	&014.264	&0304.26	&0200.41	&0144.67	&04.602	-06.392	-020.061
&307.551	&014.481	&0304.43	&0200.23	&0144.71	&04.529	-06.158	-0160.00
&307.617	&014.574	&0304.57	&0200.16	&0144.73	&04.572	-06.167	-0160.00
&307.639	&014.575	&0304.57	&0200.16	&144.734	&04.669	-05.749	-080.046
&307.705	&014.577	&0304.57	&0200.16	&144.737	&04.669	-06.943	-060.073
&307.903	&014.788	&0304.78	&0199.92	&0144.71	&04.590	-6.123	-060.051
&308.167	&015.128	&0305.12	&0199.63	&144.756	&04.596	-05.670	-60.095
&308.342	&015.370	&0305.370	&199.429	&0144.80	&4.608	-06.457	-.132
&308.452	&015.480	&0305.480	&199.350	&144.830	&4.663	-05.995	-.132
&308.496	&015.540	&0305.538	&0199.27	&0144.81	&04.626	-05.577	-060.117
&308.606	&015.641	&0305.64	&199.166	&0144.80	&04.572	-05.449	-040.122
&308.650	&015.732	&0305.73	&199.124	&0144.85	&04.608	-05.678	-020.105
&308.628	&015.659	&0305.65	&0199.24	&0144.90	&04.626	-05.928	-060.117
&308.474	&015.401	&0305.40	&0199.44	&0144.84	&04.602	-05.953	-020.149
&308.342	&015.264	&0305.26	&0199.54	&0144.80	&04.529	-05.599	-020.063
&308.210	&015.153	&0305.15	&0199.65	&0144.80	&04.529	-06.591	-040.078
&307.991	&014.896	&0304.89	&0199.89	&0144.78	&04.626	-06.029	-080.046
&307.639	&014.562	&0304.56	&200.193	&0144.75	&04.639	-06.012	-040.078
&307.485	&014.378	&0304.37	&0200.34	&0144.72	&04.559	-07.049	-080.024
&307.419	&014.312	&0304.31	&0200.404	&0144.71	&04.553	-06.246	-080.046
&307.200	&014.131	&0304.12	&0200.55	&144.679	&04.608	-06.669	-040.012
&307.134	&013.958	&0303.95	&0200.69	&144.646	&04.657	-05.970	-40.056
&307.024	&013.912	&0303.91	&0200.70	&0144.62	&04.620	-5.846	-060.051
&307.222	&014.158	&0304.15	&0200.52	&0144.67	&04.529	-06.591	-0120.01
&307.310	&014.255	&0304.25	&0200.46	&0144.71	&04.541	-06.054	-080.046
&307.244	&014.092	&0304.09	&0200.56	&0144.66	&4.651	-07.017	-0159.98
&307.200	&014.103	&0304.10	&0200.53	&0144.64	&04.669	-06.282	-0219.94
&307.441	&014.456	&0304.45	&0200.24	&0144.70	&04.547	-06.054	-0179.97
&307.749	&014.799	&0304.79	&0199.93	&0144.73	&04.517	-05.895	-060.073
&307.947	&015.004	&0305.00	&0199.77	&144.772	&04.651	-05.654	-020.061
&308.013	&015.033	&0305.03	&0199.74	&0144.77	&04.755	-05.163	-0100.02
&308.145	&015.103	&0305.10	&0199.65	&0144.75	&04.675	-05.361	-020.061
&308.452	&015.554	&0305.55	&0199.21	&144.761	&04.535	-05.870	-40.100
&308.804	&015.887	&0305.88	&0198.95	&0144.83	&04.584	-06.383	-.154
&308.760	&015.823	&0305.82	&0199.08	&0144.91	&4.712	-06.255	-.198
&308.606	&015.598	&0305.59	&0199.24	&0144.83	&04.681	-05.441	-040.056
&308.672	&015.708	&0305.70	&0199.08	&0144.78	&04.565	-06.019	-.242
&308.804	&015.889	&0305.88	&0198.98	&0144.87	&04.553	-06.718	-080.134
&308.606	&015.577	&0305.57	&0199.31	&0144.89	&4.663	-06.141	-060.117
&308.342	&015.271	&0305.26	&0199.55	&0144.82	&04.770	-6.072	-.110
&308.210	&015.212	&0305.21	&0199.59	&0144.80	&04.633	-05.765	-.110

ε330.188	ε015.120	ε305.118	ε0199.69	ε144.803	ε04.541	-06.429	-.088
ε307.925	ε014.779	ε0304.77	ε0200.01	ε0144.78	ε04.596	-06.301	-040.056
ε307.507	ε014.417	ε0304.41	ε0200.32	ε0144.73	ε04.669	-07.114	-0119.99
ε307.332	ε014.225	ε0304.22	ε0200.45	ε0144.68	ε04.608	-07.350	-100.020
ε307.244	ε014.204	ε0304.20	ε0200.47	ε144.673	ε04.541	-06.003	-0140.01
ε307.310	ε14.204	ε0304.20	ε0200.47	ε0144.67	ε04.572	-06.319	-0139.98
ε307.134	ε014.079	ε0304.07	ε0200.58	ε0144.66	ε4.602	-06.738	-0100.02
ε306.519	ε013.517	ε0303.51	ε0200.72	ε0144.24	ε04.596	-05.427	-060.051
ε305.332	ε012.531	ε0302.53	ε0200.78	ε0143.31	ε04.578	-05.569	-080.024
ε305.332	ε012.532	ε0302.53	ε0200.77	ε143.300	ε4.608	-06.003	-0160.00
ε305.376	ε012.597	ε0302.59	ε0200.68	ε0143.28	ε04.639	-06.364	-0140.01
ε305.406	ε012.654	ε0302.65	ε0200.63	ε143.281	ε04.602	-05.749	-0100.02
ε305.508	ε012.663	ε0302.66	ε0200.58	ε0143.25	ε04.572	-05.970	-119.993
ε305.464	ε012.636	ε0302.63	ε0200.58	ε0143.21	ε04.620	-7.338	-060.029
ε305.508	ε012.662	ε0302.66	ε200.547	ε0143.20	ε04.669	-07.202	-0100.02
ε305.728	ε012.846	ε0302.84	ε0200.32	ε0143.17	ε04.584	-05.878	-099.998
ε309.792	ε016.798	ε0306.79	ε0200.08	ε0146.87	ε04.565	-06.319	-.132
ε312.473	ε09.471	ε0309.46	ε0199.95	ε0149.42	ε04.633	-06.167	-.088
ε312.517	ε09.500	ε0309.499	ε0199.94	ε149.439	ε04.675	-06.282	-060.095
ε312.583	ε09.579	ε0309.57	ε0199.84	ε0149.42	ε04.608	-05.585	-020.083
ε312.809	ε09.933	ε0309.93	ε0199.52	ε0149.45	ε04.602	-06.591	-020.105
ε313.176	ε010.351	ε0310.35	ε199.188	ε0149.53	ε04.559	-06.891	-020.127
ε313.418	ε010.620	ε310.619	ε0198.96	ε0149.58	ε04.590	-5.995	-020.127
ε313.462	ε010.685	ε0310.68	ε0198.91	ε0149.59	ε04.645	-05.471	-.154
ε313.434	ε010.714	ε0310.71	ε0198.88	ε0149.59	ε04.620	-7.071	-.132
ε313.660	ε10.842	ε0310.84	ε0198.75	ε0149.60	ε04.572	-06.123	-.154
ε313.748	ε 10.968	ε0310.96	ε0198.63	ε0149.60	ε04.541	-06.457	-020.149
ε313.857	ε 11.030	ε311.028	ε0198.58	ε0149.61	ε04.572	-06.467	-.132
ε313.879	ε011.019	ε0311.01	ε0198.61	ε0149.62	ε04.614	-06.274	-020.127
ε313.726	ε010.806	ε0310.80	ε0198.82	ε149.623	ε04.602	-07.502	-.176
ε313.572	ε010.600	ε310.600	ε198.984	ε0149.58	ε04.578	-06.758	-020.149
ε313.528	ε010.541	ε0310.54	ε199.034	ε0149.57	ε04.565	-07.202	-020.127
ε313.484	ε010.488	ε0310.48	ε0199.09	ε0149.58	ε04.608	-07.994	-040.122
ε313.264	ε010.255	ε0310.25	ε0199.31	ε0149.57	ε04.626	-06.891	-040.122
ε312.957	ε09.882	ε0309.88	ε199.646	ε0149.52	ε04.706	-07.103	-020.149
ε312.671	ε09.634	ε0309.63	ε0199.84	ε0149.48	ε04.645	-07.574	-020.127
ε312.715	ε09.604	ε0309.60	ε0199.87	ε0149.47	ε04.553	-07.225	-.176
ε312.649	ε09.568	ε0309.56	ε0199.91	ε0149.48	ε4.578	-06.849	-020.149
ε312.693	ε09.711	ε0309.71	ε200.157	ε0149.86	ε04.700	-6.678	-060.095
ε313.286	ε010.396	ε0310.39	ε0200.36	ε0150.76	ε04.742	-06.996	-020.083
ε313.242	ε010.397	ε0310.39	ε0200.41	ε0150.81	ε04.626	-07.338	-060.073
ε313.638	ε010.904	ε0310.90	ε0200.43	ε0151.33	ε04.547	-07.039	-0179.97
ε313.616	ε010.737	ε0310.73	ε0200.58	ε0151.32	ε04.559	-06.985	-0100.04
ε313.308	ε010.434	ε0310.48	ε0200.78	ε0151.26	ε04.645	-06.659	-020.105
ε313.220	ε10.316	ε0310.31	ε0200.89	ε0151.21	ε04.694	-06.808	-020.083
ε313.264	ε010.289	ε0310.28	ε0200.92	ε0151.20	ε04.614	-06.610	-40.034
ε313.198	ε010.292	ε0310.29	ε200.910	ε151.199	ε04.547	-06.581	-380.068
ε313.220	ε10.325	ε0310.32	ε0200.89	ε0151.21	ε04.553	-06.728	-380.068
ε313.132	ε010.145	ε0310.14	ε0201.03	ε0151.18	ε4.694	-06.533	-040.100

&313.ØØØ	&1Ø.Ø41	&Ø31Ø.Ø4	&2Ø1.Ø96	&Ø151.13	&Ø4.724	-Ø6.985	-ØØØ.Ø58
&313.ØØ8	&Ø1Ø.225	&Ø31Ø.22	&Ø2ØØ.93	&Ø151.16	&Ø4.572	-Ø6.87Ø	-4Ø.Ø56
&313.374	&Ø1Ø.552	&Ø31Ø.55	&Ø2ØØ.7Ø	&Ø151.25	&Ø4.51Ø	-6.985	-Ø1ØØ.Ø2
&313.484	&Ø1Ø.677	&Ø31Ø.67	&Ø2ØØ.61	&Ø151.29	&Ø4.572	-Ø6.467	-Ø2Ø.Ø83
&313.462	&Ø1Ø.653	&Ø31Ø.65	&Ø2ØØ.66	&151.312	&Ø4.712	-Ø6.985	-Ø2Ø.1Ø5
&313.484	&Ø1Ø.623	&Ø31Ø.62	&Ø2ØØ.67	&Ø151.29	&Ø4.669	-Ø6.799	-ØØØ.Ø24
&313.726	&Ø1Ø.939	&Ø31Ø.93	&Ø2ØØ.36	&151.298	&Ø4.547	-Ø6.282	-Ø14Ø.Ø3
&314.Ø99	&Ø11.29Ø	&311.289	&Ø2ØØ.Ø3	&Ø151.32	&Ø4.523	-Ø6.6ØØ	-99.998
&314.187	&Ø11.385	&Ø311.38	&Ø199.96	&Ø151.34	&Ø4.633	-Ø7.Ø17	-Ø1ØØ.Ø2
&314.143	&Ø11.313	&Ø311.31	&Ø2ØØ.Ø5	&Ø151.36	&Ø4.742	-Ø6.698	-Ø4Ø.Ø78
&314.165	&Ø11.257	&Ø311.25	&Ø2ØØ.Ø8	&Ø151.34	&Ø4.687	-Ø7.419	-Ø4Ø.Ø78
&314.121	&Ø11.329	&Ø311.32	&Ø199.99	&Ø151.32	&4.565	-Ø6.9Ø1	-Ø2Ø.Ø61
&ØØØØØ.Ø	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	-2Ø.Ø61
&ØØØØØ.Ø	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	&ØØØØØ.ØØ	-2Ø.Ø61
&ØØØØØ.Ø							

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8

Permit Data Run 3 Leg 1 1/21/66 Printed 6/7/66

BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
8633.955	8Ø5.195	8Ø275.19	8Ø18Ø.46	8Ø95.655	8Ø7.471	8Ø3.Ø77	-Ø338.64
8638.Ø42	8Ø15.217	8Ø275.21	8Ø18Ø.32	8Ø95.537	8Ø7.397	8Ø6.999	-Ø358.46
8638.13Ø	815.328	8Ø275.32	8Ø18Ø.23	8Ø95.565	8Ø7.513	8Ø7.51Ø	-358.418
8638.174	8Ø15.356	8Ø275.35	8Ø18Ø.2Ø	8Ø95.562	8Ø7.587	8Ø5.441	-Ø358.46
8638.174	8Ø15.356	8Ø275.35	8Ø18Ø.2Ø	8Ø95.559	8Ø7.52Ø	83.634	-Ø358.48
8638.218	8Ø15.412	8Ø275.41	8Ø18Ø.15	8Ø95.562	8Ø7.44Ø	84.883	-Ø358.46
8638.35Ø	815.586	8Ø275.58	8Ø179.98	8Ø95.57Ø	87.4Ø4	8Ø4.594	-Ø358.44
8638.328	8Ø15.645	8Ø275.64	8Ø179.94	895.584	8Ø7.495	8Ø5.256	-Ø358.35
8638.416	8Ø15.652	8Ø275.65	8179.945	8Ø95.595	8Ø7.599	8Ø3.442	-Ø358.48
8638.459	8Ø15.681	8Ø275.68	8179.387	8Ø95.567	8Ø7.581	8Ø2.363	-Ø358.48
8638.657	8Ø15.869	8Ø275.86	8Ø179.67	8Ø95.54Ø	87.5Ø1	8Ø1.719	-Ø358.52
8638.723	8Ø15.978	8Ø275.97	8Ø179.6Ø	8Ø95.581	8Ø7.489	8Ø2.691	-Ø358.52
8638.7Ø1	8Ø15.914	8Ø275.91	8Ø179.72	895.633	8Ø7.599	8Ø5.862	-Ø358.5Ø
8638.657	8Ø15.819	8Ø275.81	8Ø179.74	8Ø95.565	8Ø7.648	8Ø4.184	-Ø358.5Ø
8638.899	8Ø16.129	8Ø276.12	8Ø179.37	8Ø95.499	8Ø7.5Ø1	8Ø3.Ø25	-Ø358.55
8639.25Ø	816.455	8Ø276.45	8Ø179.Ø6	8Ø95.515	8Ø7.373	8Ø3.273	-Ø358.57
8639.294	8Ø16.519	8Ø276.51	8Ø179.Ø3	895.548	8Ø7.41Ø	81.5Ø5	-Ø358.57
8639.25Ø	816.4Ø8	8Ø276.4Ø	8Ø179.22	8Ø95.636	8Ø7.593	8Ø2.322	-Ø358.55
8639.Ø97	8Ø16.29Ø	8276.29Ø	8179.297	8Ø95.587	8Ø7.684	8Ø3.828	-Ø358.5Ø
8639.2Ø7	8Ø16.36Ø	8276.358	8Ø179.14	8Ø95.5Ø1	8Ø7.581	8Ø4.122	-Ø358.55
8639.4Ø4	8Ø16.616	8Ø276.61	8Ø178.87	8Ø95.485	8Ø7.416	8Ø3.177	-Ø358.59
8639.536	8Ø16.741	8Ø276.74	8178.772	8Ø95.512	8Ø7.397	8Ø3.697	-Ø358.59
8639.58Ø	816.693	8Ø276.69	8Ø178.92	8Ø95.611	8Ø7.581	8Ø3.577	-Ø358.55
8639.294	8Ø16.459	8Ø276.45	8Ø179.17	8Ø95.628	8Ø7.751	8Ø4.457	-Ø358.5Ø
8639.2Ø7	8Ø16.356	8Ø276.35	8Ø179.22	8Ø95.581	8Ø7.684	8Ø3.731	-Ø358.5Ø
8639.25Ø	816.462	8Ø276.46	8179.Ø22	8Ø95.482	8Ø7.416	8Ø2.234	-Ø358.55
8639.47Ø	816.68Ø	8276.68Ø	8178.8Ø2	8Ø95.482	8Ø7.349	8Ø5.665	-Ø358.55
8639.492	8Ø16.746	8Ø276.74	8Ø178.78	8Ø95.534	8Ø7.568	8Ø5.Ø1Ø	-358.528
8639.4Ø4	8Ø16.584	8Ø276.58	8Ø179.Ø5	8Ø95.639	8Ø7.7Ø9	8Ø4.Ø26	-Ø358.46
8639.2Ø7	8Ø16.353	8Ø276.35	8179.28Ø	895.63Ø	87.721	8Ø1.938	-Ø358.55
8639.119	8Ø16.271	8Ø276.27	8179.327	8Ø95.598	8Ø7.5Ø1	8Ø2.666	-Ø358.5Ø
8639.119	8Ø16.277	8Ø276.27	8Ø179.29	8Ø95.567	8Ø7.391	8Ø3.Ø8Ø	-358.5Ø6
8639.141	8Ø16.334	8Ø276.33	8Ø179.23	8Ø95.57Ø	87.483	8Ø6.Ø21	-Ø358.52
8639.Ø97	8Ø16.266	8Ø276.26	8Ø179.38	8Ø95.65Ø	87.623	8Ø2.834	-Ø358.5Ø
8638.987	8Ø16.136	8Ø276.13	8Ø179.48	8Ø95.62Ø	87.617	8Ø2.ØØØ	-358.5Ø6
8638.943	8Ø16.Ø91	8Ø276.Ø8	8Ø179.52	8Ø95.617	8Ø7.495	8Ø2.881	-Ø358.48
8638.833	8Ø15.935	8Ø275.99	8Ø179.65	8Ø95.644	8Ø7.465	8Ø4.321	-Ø358.46
8638.635	8Ø15.812	8Ø275.81	8Ø179.81	8Ø95.625	8Ø7.629	8Ø3.327	-Ø358.46
8638.547	8Ø15.725	8Ø275.72	8Ø179.87	8Ø95.6ØØ	87.672	8Ø2.934	-Ø358.46
8638.613	8Ø15.8Ø1	8Ø275.8Ø	8Ø179.74	8Ø95.548	8Ø7.556	8Ø2.255	-Ø358.44
8638.745	8Ø15.997	8Ø275.99	8Ø179.58	8Ø95.578	8Ø7.446	-.ØØ6	-Ø358.52
8638.767	8Ø16.Ø14	8Ø276.Ø1	8Ø179.62	8Ø95.639	8Ø7.5Ø1	8Ø1.85Ø	-358.462
8638.657	8Ø15.893	8Ø275.8Ø	8Ø179.83	8Ø95.639	8Ø7.697	8Ø1.864	-Ø358.44

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&638.745	&015.965	&0275.96	&0179.56	&095.529	&07.495	&01.037	-0358.40
&638.965	&016.230	&276.229	&0179.31	&095.545	&07.385	&0.543	-0358.50
&639.009	&016.265	&0276.26	&0179.38	&095.647	&07.550	&.945	-0358.46
&638.811	&015.942	&0275.94	&0179.72	&95.661	&07.782	-.046	-0358.46
&638.657	&015.786	&0275.78	&0179.82	&095.611	&07.764	&03.669	-0358.44
&638.723	&015.870	&275.869	&0179.68	&095.551	&07.544	&01.946	-0358.44
&638.899	&016.102	&0276.10	&179.470	&95.570	&7.434	&0.838	-0358.50
&638.899	&016.144	&0276.14	&0179.47	&095.614	&07.513	&02.121	-0358.46
&638.767	&015.928	&0275.92	&0179.73	&095.666	&07.715	&02.062	-0358.44
&638.569	&015.716	&0275.71	&0179.89	&95.606	&07.745	&02.809	-0358.44
&638.547	&015.716	&0275.71	&0179.85	&095.573	&07.581	&05.331	-0358.46
&638.679	&015.905	&0275.90	&0179.67	&95.573	&07.489	&03.447	-0358.44
&638.767	&015.995	&0275.99	&0179.61	&095.606	&07.520	&3.358	-0358.46
&638.723	&015.953	&0275.95	&0179.69	&095.650	&7.642	-0.629	-0358.44
&638.657	&015.815	&0275.81	&0179.79	&095.609	&07.642	-.226	-0358.44
&638.701	&015.806	&0275.80	&0179.79	&095.603	&07.599	&03.729	-0358.48
&638.679	&015.806	&0275.80	&0179.79	&095.598	&07.593	&03.828	-0358.46
&638.635	&015.762	&0275.76	&0179.85	&095.620	&7.599	&02.500	-358.440
&638.459	&015.597	&0275.59	&0179.99	&095.592	&07.629	&02.097	-0358.44
&638.394	&015.540	&275.537	&0180.03	&095.573	&07.611	&02.283	-0358.41
&638.394	&015.532	&0275.53	&0180.04	&095.578	&07.617	&06.514	-0358.41
&638.350	&15.484	&0275.48	&0180.09	&095.573	&07.587	&07.252	-0358.37
&638.328	&015.462	&0275.46	&180.110	&95.570	&7.581	&04.832	-0358.37
&638.306	&015.456	&0275.45	&0180.11	&095.567	&07.574	&03.271	-0358.41
&638.306	&015.455	&0275.45	&0180.10	&095.562	&07.556	&04.407	-0358.41
&638.372	&015.616	&0275.61	&0179.93	&095.551	&07.581	&05.132	-0358.39
&638.613	&015.857	&0275.85	&0179.72	&095.581	&07.537	&07.380	-358.440
&638.723	&015.986	&0275.98	&0179.61	&095.603	&07.538	&013.523	-0358.44
&638.657	&016.011	&0276.01	&179.618	&095.628	&07.532	&06.310	-358.374
&638.569	&015.850	&275.847	&0179.80	&095.650	&7.593	&03.419	-0358.30
&638.437	&015.723	&0275.72	&0179.86	&095.584	&07.629	&06.012	-0358.28
&638.591	&015.973	&0275.97	&0179.55	&095.526	&07.574	&09.926	-0358.28
&638.899	&016.209	&0276.20	&0179.34	&095.548	&07.483	&04.614	-0358.44
&638.899	&016.185	&0276.18	&0179.47	&95.655	&07.538	&01.436	-0358.48
&638.591	&015.841	&0275.83	&0179.78	&095.628	&07.660	&3.153	-0358.41
&638.459	&015.749	&0275.74	&0179.82	&095.570	&7.703	&07.141	-0358.39
&638.745	&016.029	&0276.02	&0179.49	&095.521	&07.581	&08.291	-0278.67
&639.009	&016.297	&0276.29	&0179.23	&095.532	&07.507	&03.036	-0120.05
&639.009	&016.364	&0276.36	&0179.23	&095.600	&7.538	&01.232	-0179.95
&638.987	&016.171	&0276.16	&0179.48	&095.655	&07.623	&01.865	-0199.95
&638.745	&015.999	&0275.99	&0179.60	&095.600	&7.635	&03.858	-0339.89
&638.723	&015.980	&275.979	&0179.59	&095.576	&07.562	&04.116	-0279.88
&638.811	&016.052	&0276.05	&0179.51	&095.565	&07.556	&03.038	-0219.92
&638.701	&016.050	&276.048	&0179.56	&095.617	&07.563	&01.705	-0259.87
&638.723	&015.907	&0275.90	&0179.69	&095.600	&7.593	&01.623	-0279.91
&638.591	&015.875	&0275.87	&0179.70	&095.573	&07.593	&04.068	-0299.83
&638.679	&015.983	&0275.98	&0179.57	&095.556	&07.587	&03.540	-299.883
&638.701	&016.071	&0276.07	&179.508	&095.578	&07.550	&2.144	-0339.85
&638.723	&016.030	&276.078	&0179.50	&095.584	&07.623	&02.224	-0299.88
&638.723	&016.072	&0276.07	&179.528	&095.598	&07.745	&03.460	-319.856
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

8638.723	8Ø16.Ø48	8Ø276.Ø4	8Ø179.54	8Ø95.592	8Ø7.623	8Ø3.332	-Ø339.3Ø
8638.679	8Ø16.Ø47	8Ø276.Ø4	8Ø179.54	8Ø95.589	8Ø7.544	8Ø2.256	-Ø357.4Ø
8638.7Ø1	8Ø16.Ø39	8Ø276.Ø3	8Ø179.55	8Ø95.592	8Ø7.532	8Ø4.354	-Ø358.41
8638.657	8Ø15.936	8Ø275.93	8Ø179.68	8Ø95.622	8Ø7.587	8Ø5.152	-Ø358.72
8638.569	8Ø15.765	8Ø275.76	8Ø179.84	8Ø95.6Ø9	8Ø7.629	8Ø5.856	-Ø358.77
8638.437	8Ø15.693	8Ø275.69	8Ø179.9Ø	8Ø95.592	8Ø7.611	8Ø3.696	-Ø359.Ø7
8638.459	8Ø15.714	8Ø275.71	8Ø179.85	8Ø95.579	87.538	8Ø1.Ø16	-Ø358.81
8638.481	8Ø15.832	8Ø275.83	8Ø179.74	8Ø95.576	8Ø7.489	-Ø.737	-Ø358.48
8638.525	8Ø15.553	8Ø275.85	8Ø179.73	8Ø95.584	8Ø7.629	8Ø1.373	-Ø358.5Ø
8638.525	8Ø15.311	8Ø275.8Ø	8Ø179.79	8Ø95.6Ø9	8Ø7.678	8Ø1.7Ø7	-Ø358.5Ø
8638.481	8Ø15.777	8Ø275.77	8Ø179.82	8Ø95.6Ø3	8Ø7.611	8Ø2.47Ø	-358.879
8638.5Ø3	8Ø15.817	8Ø275.81	8Ø179.75	8Ø95.576	8Ø7.568	8Ø.966	8Ø359.Ø7
8638.547	8Ø15.88Ø	8275.878	8Ø179.7Ø	8Ø95.584	8Ø7.562	8.281	-Ø359.Ø7
8638.569	8Ø15.833	8Ø275.83	8Ø179.78	895.611	8Ø7.66Ø	8.8Ø8	-Ø359.Ø9
8638.481	8Ø15.715	8Ø275.71	8Ø179.88	8Ø95.595	8Ø7.66Ø	82.Ø66	-Ø359.12
8638.437	8Ø15.643	8Ø275.64	8Ø179.95	8Ø95.592	8Ø7.611	8Ø1.13Ø	-359.Ø99
8638.35Ø	815.555	8Ø275.55	8Ø18Ø.Ø2	8Ø95.576	8Ø7.574	8Ø2.12Ø	-359.Ø99
8638.3Ø6	8Ø15.492	8Ø275.49	818Ø.Ø35	8Ø95.576	8Ø7.6Ø5	8Ø2.131	-Ø359.Ø7
8638.328	8Ø15.477	8Ø275.47	8Ø18Ø.Ø9	8Ø95.573	8Ø7.642	8Ø1.Ø59	-Ø359.Ø9
8638.284	8Ø15.477	8Ø275.47	8Ø18Ø.Ø9	8Ø95.573	8Ø7.666	8Ø1.584	-Ø359.Ø9
8638.284	8Ø15.477	8Ø275.47	8Ø18Ø.Ø9	8Ø95.573	8Ø7.6Ø5	8Ø3.158	-Ø359.12
8638.218	8Ø15.399	8Ø275.39	8Ø18Ø.16	8Ø95.559	8Ø7.587	8Ø3.627	-Ø359.Ø7
8638.152	8Ø15.332	8Ø275.33	8Ø18Ø.22	895.551	8Ø7.6Ø5	8Ø4.134	-Ø359.Ø9
8638.13Ø	815.323	8Ø275.32	8Ø18Ø.22	8Ø95.548	8Ø7.611	8Ø.945	-Ø359.Ø7
8638.174	8Ø15.334	8Ø275.33	8Ø18Ø.19	8Ø95.529	8Ø7.611	8Ø2.Ø97	-Ø359.Ø9
8638.174	8Ø15.352	8Ø275.35	818Ø.184	8Ø95.534	8Ø7.562	8Ø3.686	-Ø359.14
8638.13Ø	815.259	8Ø275.25	8Ø18Ø.27	8Ø95.534	8Ø7.562	8Ø2.797	-Ø359.12
8638.13Ø	815.231	8Ø275.22	8Ø18Ø.29	8Ø95.523	8Ø7.599	8Ø2.789	-Ø359.14
8638.152	8Ø15.3Ø9	8Ø275.3Ø	8Ø18Ø.2Ø	8Ø95.512	8Ø7.617	8Ø1.849	-Ø359.12
8638.24Ø	815.43Ø	8275.427	8Ø18Ø.11	8Ø95.543	8Ø7.617	8Ø1.923	-Ø359.14
8638.262	8Ø15.469	8Ø275.46	8Ø18Ø.Ø8	8Ø95.551	8Ø7.581	8Ø2.751	-Ø359.16
8638.284	8Ø15.476	8Ø275.47	8Ø18Ø.Ø7	8Ø95.551	8Ø7.593	8Ø2.1Ø4	-Ø359.14
8638.3Ø6	8Ø15.48Ø	8275.479	8Ø18Ø.Ø6	8Ø95.545	8Ø7.623	8Ø1.321	-Ø359.Ø9
8638.416	8Ø15.651	8Ø275.65	8179.898	8Ø95.548	8Ø7.623	8.392	-Ø359.16
8638.525	8Ø15.829	8Ø275.82	8Ø179.75	895.578	8Ø7.562	-Ø.811	-Ø359.Ø7
8638.657	8Ø15.9Ø7	8Ø275.9Ø	8Ø179.69	8Ø95.598	8Ø7.489	8.2Ø9	-Ø359.16
8638.7Ø1	8Ø15.951	8Ø275.94	8Ø179.64	8Ø95.592	8Ø7.532	8Ø2.728	-Ø359.14
8638.767	8Ø16.ØØØ	8275.999	8Ø179.59	8Ø95.598	8Ø7.642	8Ø3.555	-Ø359.14
8638.811	8Ø16.Ø58	8Ø276.Ø5	8Ø179.53	8Ø95.589	8Ø7.678	8Ø2.9Ø3	-Ø359.16
8638.921	8Ø16.125	8Ø276.12	8Ø179.47	8Ø95.6Ø3	8Ø7.599	8Ø2.Ø13	-Ø359.16
8638.965	8Ø16.21Ø	8276.21Ø	8179.385	8Ø95.595	8Ø7.471	8Ø2.1Ø6	-Ø359.18
8639.ØØ9	8Ø16.243	8Ø276.24	8Ø179.33	8Ø95.581	8Ø7.544	8Ø2.823	-Ø359.18
8639.Ø31	8Ø16.257	8Ø276.25	8Ø179.34	8Ø95.6Ø6	8Ø7.776	8Ø1.742	-Ø359.18
8638.987	8Ø16.166	8Ø276.16	8Ø179.46	8Ø95.628	8Ø7.739	8Ø2.458	-Ø359.16
8638.987	8Ø16.1Ø8	8Ø276.1Ø	8Ø179.48	8Ø95.595	8Ø7.599	8Ø2.134	-Ø359.13
8638.965	8Ø16.119	8Ø276.11	8Ø179.45	8Ø95.576	8Ø7.532	8Ø3.694	-Ø359.18
8639.ØØ9	8Ø16.165	8Ø276.16	8Ø179.42	8Ø95.589	8Ø7.581	8Ø4.Ø3Ø	-359.165
8638.877	8Ø16.Ø42	8Ø276.Ø4	8179.613	8Ø95.652	8Ø7.678	8Ø4.382	-Ø359.16
8638.745	8Ø15.882	8Ø275.88	8179.731	8Ø95.611	8Ø7.69Ø	84.763	-Ø359.18
8638.745	8Ø15.882	8Ø275.88	8179.7Ø3	8Ø95.584	8Ø7.581	8Ø3.663	-Ø359.12

ε638.899	ε016.140	ε276.139	ε0179.44	ε95.578	ε07.599	ε03.347	-0359.20
ε638.877	ε016.107	ε0276.10	ε0179.55	ε095.639	ε07.721	ε02.045	-0359.16
ε638.789	ε015.891	ε0275.88	ε0179.73	ε095.622	ε07.722	ε02.651	-0359.20
ε638.701	ε015.828	ε0275.82	ε0179.74	ε095.570	ε7.642	ε04.184	-0359.18
ε638.789	ε015.989	ε0275.98	ε0179.54	ε095.529	ε07.550	ε4.522	-0359.18
ε638.945	ε016.113	ε0276.11	ε0179.46	ε095.578	ε07.611	ε01.840	-359.187
ε633.899	ε016.043	ε0276.04	ε0179.60	ε095.647	ε07.733	ε01.412	-0359.18
ε638.767	ε015.884	ε0275.88	ε0179.71	ε095.598	ε07.764	ε04.677	-0359.18
ε633.811	ε015.898	ε0275.89	ε0179.65	ε095.556	ε07.660	ε5.085	-0359.20
ε638.899	ε016.080	ε276.078	ε0179.45	ε095.529	ε07.593	ε03.044	-0359.20
ε639.009	ε016.177	ε0276.17	ε0179.39	ε095.570	ε7.635	ε02.668	-0359.20
ε639.009	ε016.161	ε0276.16	ε0179.44	ε095.603	ε07.697	ε02.802	-0359.20
ε638.965	ε016.069	ε0276.06	ε0179.52	ε095.592	ε07.709	ε04.331	-0359.20
ε638.943	ε016.054	ε0276.05	ε0179.52	ε095.581	ε07.635	ε05.913	-0359.20
ε638.943	ε016.075	ε0276.07	ε0179.48	ε095.559	ε07.623	ε04.781	-0359.20
ε639.009	ε016.102	ε0276.10	ε179.478	ε095.578	ε07.629	ε03.687	-0359.20
ε638.965	ε016.093	ε0276.09	ε0179.50	ε095.598	ε07.642	ε05.212	-0359.18
ε638.965	ε016.089	ε0276.08	ε0179.51	ε095.598	ε07.648	ε04.937	-0359.23
ε638.877	ε015.952	ε0275.94	ε0179.69	ε095.647	ε07.642	ε06.271	-0359.18
ε638.437	ε015.479	ε0275.47	ε0180.12	ε095.603	ε07.635	ε05.307	-0359.16
ε637.822	ε014.824	ε0274.82	ε0180.65	ε095.482	ε07.623	ε06.899	-0359.05
ε637.185	ε014.140	ε274.139	ε0181.20	ε095.348	ε07.550	ε4.955	-0 59.00
ε636.433	ε013.422	ε0273.41	ε0181.92	ε095.342	ε07.495	ε05.129	-0 9.18
ε635.427	ε012.586	ε0272.58	ε0182.96	ε095.548	ε07.544	ε05.796	-0 9.20
ε634.285	ε011.576	ε0271.57	ε0184.17	ε095.749	ε07.550	ε6.944	-0 .34
ε6[illegible]3.230	ε10.399	ε0270.39	ε0185.22	ε095.625	ε07.532	ε07.823	-03 .36
ε632.241	ε09.214	ε0269.21	ε0186.15	ε095.370	ε7.452	ε04.703	-0359.47
ε631.033	ε08.012	ε0268.01	ε0187.39	ε095.411	ε07.477	ε02.795	-0359.47
ε629.341	ε06.634	ε0266.53	ε0189.04	ε095.680	ε7.629	ε02.772	-0359.29
ε627.693	ε014.932	ε0264.93	ε190.588	ε095.518	ε07.684	ε03.348	-0359.18
ε00000.0	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	-359.187
ε00000.0	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	-359.187
ε00000.0	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	-359.187

Run 3 Leg 2

BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
8626.243	8013.470	8263.469	80191.90	8095.378	807.568	803.185	-0359.18
8644.172	8011.288	80281.28	80179.78	80101.07	808.142	804.196	-0358.98
8644.282	8011.383	80281.38	80179.70	80101.08	808.981	805.609	-0358.94
8644.326	8011.416	80281.41	80179.67	80101.09	808.938	805.462	-0358.96
8644.370	811.466	80281.46	80179.61	8101.074	807.977	805.071	-0358.98
8644.414	8011.537	80281.53	80179.53	80101.07	808.032	804.113	-0358.98
8644.436	8011.544	80281.54	80179.54	80101.08	808.081	804.724	-0358.96
8644.414	8011.482	80281.43	80179.62	80101.10	808.044	803.589	-0358.96
8644.414	8011.497	80281.49	80179.54	80101.04	807.892	804.803	-0358.98
8644.700	811.763	80281.76	80179.23	80101.00	807.806	805.465	-0359.03
8644.832	8011.874	80281.87	80179.16	8101.033	807.928	808.445	-0359.01
8644.766	8011.777	80281.77	80179.28	80101.06	808.051	805.601	-0358.96
8644.722	8011.739	80281.73	80179.28	80101.02	807.965	804.852	-0358.98
8645.075	8012.066	80282.06	80178.86	[illegible].93	807.745	803.611	-0359.05
8645.513	8012.399	80282.39	80178.46	[illegible].86	87.684	804.419	-0359.05
8645.603	8012.526	80282.52	80178.31	[illegible].63	807.357	802.637	-0359.05
8645.667	8012.532	80282.50	80178.36	[illegible].07	808.020	83.873	-0359.05
8645.601	8012.417	80282.41	80178.40	[illegible].07	808.075	805.236	-0359.05
8649.424	8016.222	80286.22	80178.23	80104.51	87.843	801.305	-0359.14
8651.163	87.780	8287.779	80178.02	80105.0[illegible]	807.642	802.465	-0359.20
8651.553	808.127	80288.12	80177.96	80106.09	807.793	802.145	-0359.20
8651.835	808.409	80288.40	80178.13	80106.54	807.913	83.493	-0359.14
8651.641	808.333	80288.33	80178.34	[illegible].07	807.959	[illegible].032	-0359.14
8651.379	807.998	80287.90	80178.50	80106.41	807.855	80.667	-0359.14
8651.072	807.654	80287.65	80178.64	80106.29	807.727	801.354	-0359.12
8650.913	807.541	80287.54	8178.715	80106.25	807.703	80.778	-0359.12
8650.764	807.410	8287.408	80178.00	8106.200	807.745	803.655	-0359.12
8649.050	85.625	80285.62	80179.04	80104.06	807.800	81.766	-0359.05
8647.446	8014.018	80284.01	80179.29	80103.50	807.770	82.488	-0358.98
8647.380	8013.925	80283.92	80179.37	80103.30	807.745	8.088	-0359.01
8647.358	8013.918	80283.91	80179.38	80103.30	807.715	-.098	-0358.93
8647.358	8013.917	80283.91	80179.38	80103.31	807.703	-.066	-0359.01
8647.336	8013.907	80283.90	80179.40	80103.30	807.709	80.948	-0359.01
8647.271	8013.839	80283.83	80179.47	80103.31	807.721	801.473	-0359.01
8647.095	8013.692	80283.69	80179.63	80103.32	807.733	80.521	-0358.96
8646.963	8013.606	80283.60	80179.72	80103.32	807.703	801.508	-0358.96
8647.007	8013.605	80283.60	80179.71	80103.31	807 666	805.665	-0358.94
8647.051	8013.729	80283.72	80179.56	80103.29	807.611	802.936	-0358.94
8647.075	8013.745	80283.74	80179.57	80103.31	807.666	8.445	-0358.96
8646.875	8013.516	80283.51	80179.85	80103.37	87.709	801.777	-0358.94
8646.699	8013.350	8283.348	80180.02	80103.37	87.690	82.447	-0358.94
8646.699	8013.369	80283.36	80179.96	80103.33	807.587	-.233	-0358.96
8646.853	8013.530	8283.530	8179.797	80103.32	807.581	801.294	-0358.96
8646.875	8013.555	80283.55	80179.78	8103.335	807.660	-.806	-0358.96
8646.809	8013.470	8283.469	80179.88	80103.35	807.684	801.835	-0358.93

&646.009	&013.478	&0283.47	&0179.83	&0103.31	&07.678	&0.936	-0358.98
&646.875	&013.541	&0283.54	&0179.78	&0103.32	&07.672	-01.667	-0359.01
&646.919	&013.582	&0283.57	&0179.72	&0103.30	&07.660	-1.823	-0358.98
&647.095	&013.754	&0283.75	&0179.53	&103.282	&07.617	-01.289	-0359.01
&647.358	&013.962	&0283.96	&0179.30	&0103.26	&07.581	-.436	-0359.03
&647.380	&14.026	&0284.02	&0179.25	&0103.27	&07.611	-0.978	-0359.03
&647.358	&013.946	&0283.94	&0179.36	&0103.31	&7.690	-1.839	-0358.98
&647.358	&013.940	&283.939	&0179.33	&0103.27	&07.623	&0.840	-359.033
&647.556	&014.200	&284.200	&179.039	&0103.23	&07.501	-02.648	-0359.03
&647.710	&14.325	&0284.32	&0178.93	&0103.25	&07.495	&01.227	-0359.00
&647.644	&014.208	&0284.20	&0179.09	&0103.29	&07.562	&0.532	-0359.03
&647.512	&014.050	&284.049	&0179.22	&103.269	&07.611	&03.135	-0359.07
&647.446	&014.031	&0284.03	&179.223	&0103.25	&07.562	&01.569	-0359.05
&647.446	&014.044	&0284.04	&0179.20	&0103.24	&07.544	&.119	-0359.03
&647.468	&014.019	&0284.01	&0179.25	&0103.27	&07.617	&02.991	-0359.05
&647.249	&013.859	&0283.85	&0179.42	&0103.28	&07.678	&.397	-0359.01
&647.161	&013.818	&0283.81	&0179.46	&0103.28	&7.611	&01.189	-0359.01
&647.227	&013.891	&0283.88	&0179.34	&0103.23	&07.526	&02.034	-0359.01
&647.292	&014.016	&0284.01	&0179.22	&0103.24	&07.501	&03.694	-0359.01
&647.314	&014.011	&0284.01	&179.253	&0103.26	&07.581	-01.937	-0359.01
&647.183	&013.856	&0283.85	&0179.44	&103.293	&07.678	&.125	-0359.01
&647.029	&013.707	&0283.70	&0179.60	&0103.31	&7.654	&02.377	-0359.01
&646.941	&013.629	&0283.62	&0179.68	&0103.31	&07.550	&1.135	-0358.98
&646.941	&013.608	&0283.60	&0179.71	&0103.31	&07.489	&03.832	-0358.98
&646.919	&013.604	&0283.60	&0179.72	&103.321	&07.532	&02.074	-0359.01
&646.853	&013.552	&0283.55	&0179.77	&0103.32	&07.556	&03.629	-0358.94
&646.787	&013.510	&283.508	&0179.82	&0103.33	&07.611	&04.366	-0358.98
&646.765	&013.502	&0283.49	&0179.83	&103.329	&07.599	&02.557	-0358.96
&646.765	&013.592	&0283.59	&179.703	&0103.29	&07.538	&01.830	-358.989
&646.875	&013.678	&0283.67	&0179.62	&0103.30	&07.538	&02.601	-0359.03
&646.853	&013.632	&0283.63	&0179.69	&0103.32	&07.629	&03.524	-0219.68
&646.809	&013.560	&283.560	&179.761	&0103.32	&07.666	&05.314	-080.178
&646.831	&013.622	&0283.62	&179.665	&0103.28	&07.611	&05.170	-08[illegible].205
&646.985	&013.794	&0283.79	&0179.48	&0103.28	&7.550	&3.282	-040.034
&647.073	&013.850	&283.848	&0179.43	&0103.28	&07.520	&2.061	-0120.03
&647.051	&013.853	&0283.85	&0179.43	&0103.28	&07.581	&02.390	-100.020
&647.051	&013.826	&0283.82	&0179.49	&0103.31	&07.629	&05.878	-0140.03
&647.029	&013.764	&0283.76	&0179.55	&103.313	&07.642	&05.968	-0179.95
&647.029	&013.804	&0283.80	&0179.47	&0103.27	&07.581	&01.735	-060.051
&647.249	&014.024	&0284.02	&0179.23	&0103.26	&7.501	&02.637	-060.051
&647.292	&014.075	&0284.07	&0179.19	&0103.26	&07.538	&03.607	-080.024
&647.205	&013.948	&0283.94	&0179.36	&0103.31	&7.593	&03.636	-0130.06
&647.095	&013.811	&0283.81	&179.478	&0103.28	&07.642	&05.601	-030.046
&647.139	&013.912	&0283.91	&0179.31	&0103.23	&7.568	&02.837	-060.029
&647.446	&014.189	&0284.18	&0179.05	&0103.24	&07.471	&03.530	-160.005
&647.490	&14.195	&0284.19	&0179.09	&0103.23	&07.507	&04.112	-060.073
&647.227	&013.926	&0283.92	&0179.36	&0103.29	&07.617	&05.591	-0110.04
&647.073	&013.795	&0283.79	&0179.50	&103.293	&07.629	&03.467	-0119.99
&647.073	&013.769	&0283.76	&0179.51	&0103.28	&07.550	&3.329	-0140.01

6647.051	6013.769	60283.76	60179.51	60103.23	607.495	651.097	-0179.99
6647.007	6013.763	60283.76	60179.53	60103.26	607.495	602.991	-0143.31
6646.985	6013.768	60283.75	60179.49	60103.26	67.538	60.654	-080.024
6647.007	6013.768	60283.76	60179.51	60103.20	67.544	604.141	-0139.98
6647.051	6013.770	6283.769	60179.49	60103.26	607.550	63.963	-099.998
6647.095	6013.894	60283.89	60179.35	60103.25	67.538	60.730	-140.010
6647.183	6013.954	60283.95	60179.30	60103.25	607.530	604.189	-099.998
6647.183	6013.970	6283.969	60179.26	60103.23	607.538	601.041	-0119.95
6647.271	6014.055	60284.05	60179.18	60103.23	607.520	6.996	-020.083
6647.380	614.136	60284.13	60179.10	60103.23	607.513	603.929	-000.024
6647.358	6014.141	60284.13	60179.11	60103.25	607.538	-0.695	-000.024
6647.271	6013.970	6283.969	60179.31	60103.20	607.550	-.524	-060.073
6647.161	6013.838	60283.83	60179.44	6103.277	607.507	601.548	-0140.01
6647.139	6013.324	60283.82	60179.43	60103.25	607.455	6.395	-020.039
6647.139	6013.928	60283.92	60179.31	60103.24	607.458	601.598	-0100.02
6647.117	6013.950	6283.947	60179.32	60103.26	607.523	6.082	-060.029
6647.073	6013.837	60283.83	60179.45	60103.29	607.507	602.003	-0140.01
6647.007	6013.805	60283.80	60179.49	60103.29	607.410	61.586	-080.046
6647.073	6013.804	60283.80	60179.48	60103.29	607.379	602.236	-040.054
6647.051	6013.812	60283.81	6179.448	60103.25	607.446	604.057	-000.046
6647.007	6013.738	60283.78	60179.53	60103.29	607.532	602.747	-020.061
6646.985	6013.738	60283.73	60179.56	60103.33	607.423	604.272	-080.046
6646.985	6013.731	60283.78	6179.481	60103.26	67.263	601.725	-079.980
6647.095	6013.902	60283.96	6179.363	60103.26	607.310	602.475	-060.051
6647.073	6013.831	60283.87	60179.43	60103.26	607.536	602.456	-080.091
6647.029	6013.780	6283.780	6179.511	60103.29	607.593	605.952	-0100.02
6647.073	6013.840	6283.840	6179.407	60103.24	607.355	60.979	-0100.02
6647.249	6014.014	60284.01	60179.24	60103.25	607.214	601.017	-0100.06
6647.117	6013.865	60283.86	60179.45	60103.32	607.446	601.610	-0100.06
6646.653	6013.502	60283.59	6179.745	60103.33	607.054	602.903	-000.068
6646.765	6013.544	60283.54	60179.76	60103.34	607.568	604.909	-0100.02
6646.963	6013.701	60283.70	6179.489	60103.26	607.300	62.875	-040.056
6647.073	6013.915	60283.91	60179.36	60103.28	67.104	603.235	-0140.43
6646.963	6013.790	6283.720	60179.55	60103.34	607.440	604.061	-0100.04
6646.655	6013.484	60283.48	60179.07	60103.33	607.593	604.541	-0100.04
6646.545	6013.361	60283.55	60180.00	6103.349	607.544	605.937	-0130.00
6646.545	6013.367	60283.56	60179.97	60103.34	67.346	604.847	-099.998
6646.545	6013.443	6283.439	60179.89	60103.35	607.269	607.870	-100.963
6646.589	6013.435	60283.43	60179.96	60103.36	607.444	604.053	-083.046
6646.501	6013.313	60283.51	60180.04	103.35	607.485	605.317	-0120.01
6646.531	6013.349	6283.349	6180.005	60103.35	607.433	601.147	-060.046
6646.611	6013.457	60283.45	60179.07	60103.35	607.428	602.082	-0160.00
6646.677	6013.467	60283.46	60179.00	60103.34	607.458	602.360	-00.046
6646.655	6013.309	60283.30	60179.97	6103.357	607.507	603.444	-060.051
6646.677	6013.419	60283.41	60179.91	60103.32	607.515	602.457	-040.070
6646.853	6013.629	60283.62	60179.67	60103.33	607.471	602.016	-080.068
6647.029	6013.768	60283.78	60179.51	60103.29	607.404	603.939	-060.073
6647.139	6013.896	60283.89	60179.39	60103.28	607.404	603.009	-.132
6647.205	6013.966	60283.96	60179.31	60103.28	67.495	601.579	-040.044
6647.205	6013.972	60283.96	60179.31	103.27	607.507	6.471	-060.095

6647.512	6014.252	60284.23	6179.003	60103.25	607.379	602.620	-20.105
6647.710	6014.427	60284.42	60170.82	60104.25	67.397	603.400	-.154
6647.776	6014.475	60284.47	60178.79	60103.27	607.434	601.500	-40.122
6647.776	6014.434	60284.43	60178.85	60103.28	607.434	603.685	-060.139
6647.732	6014.375	60284.37	60178.90	60103.27	607.410	64.335	-040.100
6647.732	6014.384	60284.38	60178.87	60103.26	67.391	604.240	-020.127
6647.886	6014.495	60284.49	60178.75	60103.25	607.416	602.061	-.220
6647.886	6014.555	60284.55	60178.70	60103.26	67.434	602.665	-020.105
6647.836	6014.547	60284.54	60178.73	60103.27	607.428	603.599	-020.149
6647.842	6014.457	60284.45	60178.81	60103.26	607.423	601.023	-040.122
6647.886	6014.437	60284.45	60178.82	60103.26	607.434	603.199	-040.144
6647.886	6014.437	60284.45	60178.81	60103.24	607.440	63.596	-.176
6647.886	6014.486	60284.48	60178.76	60103.24	607.423	601.624	-020.127
6647.930	6014.494	60284.49	60178.74	60103.23	607.404	602.327	-020.127
6647.930	6014.496	60284.49	60178.73	60103.23	607.379	603.076	-.132
6647.900	6014.443	60284.44	60178.81	60103.25	607.391	604.823	-.154
6647.842	6014.341	60284.34	6178.901	60103.24	607.428	602.939	-.132
6647.754	6014.283	60284.28	60178.95	60103.24	607.416	602.986	-040.100
6647.710	6014.227	60284.22	60179.02	60103.25	67.367	-0.524	-020.105
6647.556	6014.113	60284.11	60179.15	60103.26	607.336	602.213	-040.078
6647.446	6013.964	60283.96	60179.31	60103.27	607.361	600.396	-080.046
6647.336	6013.885	60283.88	60179.39	6103.274	607.391	601.890	-20.039
6647.336	6013.875	60283.87	60179.40	60105.20	67.385	605.809	-.066
6647.249	6013.788	60283.78	60179.51	60103.30	607.391	606.459	-300.060
6647.117	6013.669	60283.66	60179.64	60103.31	607.404	603.134	-0100.04
6647.117	6013.646	60283.64	60179.67	60103.32	607.397	603.469	-080.046
6647.183	6013.658	60283.65	60179.63	60103.29	607.391	602.772	-060.051
6647.139	6013.724	60283.72	60179.56	60103.28	607.361	603.414	-060.051
6647.161	6013.746	60283.74	60179.54	60103.20	607.373	601.400	-40.073
6647.139	6013.755	60283.75	60179.53	60103.28	607.434	607.556	-0100.04
664 .161	6013.753	60283.75	60179.53	60103.28	607.440	64.130	-060.051
6647.183	6013.752	60283.75	60179.53	60103.28	607.343	602.072	-0100.04
6647.205	6013.753	60283.75	60179.53	60103.29	607.306	602.928	-080.046
6647.161	6013.677	60283.67	60179.64	60103.31	607.391	607.110	-080.002
6647.051	6013.610	6283.609	60179.71	60103.32	607.446	605.665	-380.066
6647.029	6013.601	60283.60	60179.71	60103.31	607.397	604.003	-060.051
6647.095	6013.640	6283.640	6179.662	60103.30	607.318	602.324	-0140.01
6647.139	6013.646	60283.64	60179.67	6103.315	607.355	604.125	-300.046
6647.095	6013.594	60283.59	60179.73	60103.32	607.422	605.573	-040.056
6647.073	6013.608	60283.60	60179.68	60103.29	607.410	65.617	-0100.02
6647.249	6013.761	60283.76	6179.530	6105.291	607.410	64.759	-060.029
6647.271	6013.805	60283.80	60179.49	60103.30	607.397	604.570	-60.051
6647.314	6013.806	60283.80	60179.49	60103.29	607.434	606.984	-030.046
6647.424	6013.941	60283.93	60179.31	60103.25	607.416	605.972	-060.051
6647.666	6014.180	6284.178	60179.06	60103.24	607.373	605.742	-020.063
6647.842	6014.313	60284.31	60178.94	60103.25	607.343	604.474	-020.127
6647.864	6014.354	60284.35	60178.92	60103.28	67.397	606.805	-020.149
6647.864	6014.335	60284.33	60178.95	60103.28	607.440	66.304	-.110
6647.798	6014.276	60284.27	60178.99	60103.27	607.410	66.957	-060.073
6647.842	6014.308	60284.30	60178.94	60103.25	607.397	609.863	-060.051

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8647.364	8014.313	80284.31	80178.90	80103.29	807.391	804.656	-04[illegible].100
8647.798	8014.206	80284.20	80179.06	80103.27	807.379	803.470	-20.105
8647.820	814.203	80284.20	80179.07	[illegible]103.27	807.385	807.131	-020.105
8647.820	814.203	80284.20	80179.07	[illegible]103.27	807.397	809.753	-020.083
8647.776	8014.202	80284.20	8179.072	80103.27	807.404	8012.147	-060.073
8647.798	8014.202	80284.20	8179.066	80103.26	807.367	804.461	-060.073
8647.820	814.202	80284.20	8179.063	80103.26	807.373	807.591	-080.068
8647.798	8014.164	80284.16	80179.11	80103.27	807.385	806.826	-020.105
8647.622	8014.020	8284.019	80179.25	80103.27	807.404	805.125	-060.051
8647.534	8013.945	80283.94	80179.32	80103.26	807.379	807.734	-040.056
8647.490	813.923	80283.92	80179.34	80103.27	807.379	803.636	-080.046
8647.424	8013.858	80283.85	80179.42	80103.28	807.373	807.717	-0100.04
8647.380	813.801	80283.79	80179.50	8103.299	807.379	806.086	-040.034
8647.380	813.771	80283.76	80179.51	80103.28	807.373	803.880	-0120.03
8647.380	813.771	80283.76	80179.50	80103.27	807.379	8010.682	-0100.02
8647.380	813.771	80283.76	80179.49	80103.26	87.391	803.771	-040.056
8647.424	8013.770	8283.769	80179.50	80103.27	807.404	806.884	-099.998
8647.446	8013.791	80283.79	80179.47	80103.26	807.385	803.929	-0100.02
8647.534	8013.921	80283.92	8179.346	80103.26	807.349	807.527	-040.056
8647.534	8013.949	80283.94	80179.33	8103.277	807.340	8014.784	-060.051
8647.512	8013.870	8283.870	8179.434	80103.30	807.391	806.965	-060.051
8647.468	8013.779	80283.77	80179.53	8103.307	807.404	8015.860	-99.998
8647.468	8013.718	80283.71	80179.59	80103.31	807.391	806.503	-020.061
8647.358	8013.676	80283.67	80179.63	80103.31	807.330	87.382	-0119.99
8647.358	8013.661	80283.65	80179.66	80103.32	807.336	809.391	-060.051
8647.358	8013.650	8283.648	80179.68	80103.32	807.440	85.118	-0100.02
8647.336	8013.647	80283.64	80179.68	80103.32	807.458	805.878	-0100.06
8647.292	8013.605	80283.60	80179.72	80103.32	807.428	805.423	-060.007
8647.227	8013.570	8283.568	80179.75	8103.318	807.367	807.495	-0119.99
8647.249	8013.591	80283.59	8179.712	80103.30	807.330	811.170	-80.046
8647.358	8013.730	8283.730	8179.563	80103.29	807.410	85.021	-020.061
8647.380	813.749	80283.74	80179.56	80103.31	807.501	803.644	-040.034
8647.336	8013.670	8283.670	8179.648	80103.31	807.471	804.627	-0100.04
8647.358	8013.730	8283.727	80179.54	80103.27	807.300	87.254	-080.046
8647.622	8014.008	80284.00	80179.25	80103.26	807.245	804.744	-0100.04
8647.710	814.080	8284.079	80179.19	80103.27	807.385	804.351	-060.073
8647.600	813.901	80283.90	8179.420	8103.321	807.520	86.207	-080.024
8647.446	8013.770	8283.769	80179.53	80103.30	807.428	8010.296	-0100.04
8647.490	813.840	8283.840	8179.420	8103.260	87.245	808.475	-080.024
8647.600	813.997	80283.99	80179.27	80103.27	807.239	807.744	-060.095
8647.556	8013.881	80283.88	80179.44	80103.32	807.458	8011.751	-060.051
8647.271	8013.624	80283.62	80179.71	80103.33	807.550	87.497	-0100.02
8647.205	8013.558	80283.55	80179.76	80103.31	807.379	809.750	-0160.52
8647.205	8013.559	80283.55	80179.75	8103.307	807.227	805.436	-0139.96
8647.227	8013.611	80283.60	80179.69	80103.30	807.275	807.227	-0100.06
8647.205	8013.594	80283.59	80179.73	80103.32	807.452	805.400	-120.037
8647.227	8013.571	80283.57	80179.75	80103.32	807.544	806.996	-0100.04
8647.271	8013.622	80283.62	8179.676	80103.29	807.404	8018.329	-0120.01
8647.249	8013.680	8283.678	80179.63	[illegible]103.31	87.324	808.329	-0139.90
8647.292	8013.676	80283.63	80179.69	[illegible]	807.324	804.402	-0100.04

&647.424	&Ø13.7Ø7	&Ø283.7Ø	&Ø179.53	&Ø1Ø3.29	&Ø7.446	&Ø7.538	-ØØØ.Ø24
&647.468	&Ø13.736	&Ø283.73	&Ø179.5Ø	&Ø1Ø3.31	&Ø7.465	&Ø5.595	-ØØØ.Ø46
&647.336	&Ø13.596	&Ø283.59	&Ø179.69	&Ø1Ø3.29	&Ø7.428	&Ø3.484	-Ø6Ø.Ø73
&647.292	&Ø13.563	&Ø283.56	&Ø179.7Ø	&Ø1Ø3.27	&Ø7.416	&Ø5.934	-Ø1ØØ.Ø2
&647.336	&Ø13.672	&Ø283.67	&Ø179.62	&Ø1Ø3.29	&Ø7.465	&Ø6.713	-Ø4Ø.Ø34
&647.358	&Ø13.641	&Ø283.64	&179.676	&Ø1Ø3.31	&Ø7.5Ø7	&Ø5.738	-Ø8Ø.Ø68
&647.139	&Ø13.435	&Ø283.43	&Ø179.86	&Ø1Ø3.29	&Ø7.471	&Ø4.319	-Ø12Ø.Ø1
&647.117	&Ø13.391	&Ø283.39	&179.9Ø7	&Ø1Ø3.29	&Ø7.385	&Ø6.599	-Ø8Ø.Ø24
&647.139	&Ø13.481	&Ø283.48	&179.819	&Ø1Ø3.29	&Ø7.41Ø	&1Ø.Ø46	-Ø12Ø.Ø3
&647.2Ø5	&Ø13.5Ø3	&Ø283.5Ø	&Ø179.84	&Ø1Ø3.34	&Ø7.52Ø	&3.929	-Ø14Ø.Ø3
&646.985	&Ø13.272	&Ø283.27	&Ø18Ø.Ø8	&Ø1Ø3.35	&Ø7.574	&Ø8.5Ø3	-Ø119.99
&646.853	&Ø13.181	&Ø283.18	&Ø18Ø.17	&1Ø3.351	&Ø7.483	&Ø1Ø.513	-Ø12Ø.Ø3
&646.853	&Ø13.196	&Ø283.19	&Ø18Ø.13	&Ø1Ø3.33	&Ø7.385	&Ø5.922	-Ø6Ø.ØØ7
&647.ØØ7	&Ø13.358	&Ø283.35	&Ø179.98	&Ø1Ø3.33	&Ø7.379	&Ø6.916	-Ø119.99
&646.985	&Ø13.393	&Ø283.39	&Ø179.94	&Ø1Ø3.33	&Ø7.556	&Ø2.726	-Ø8Ø.Ø24
&647.Ø29	&Ø13.387	&Ø283.38	&Ø179.96	&Ø1Ø3.35	&Ø7.617	&Ø1.518	-Ø119.99
&647.ØØ7	&Ø13.358	&Ø283.35	&Ø18Ø.ØØ	&1Ø3.357	&Ø7.532	&Ø2.116	-Ø4Ø.Ø56
&647.Ø73	&Ø13.5Ø3	&Ø283.5Ø	&Ø179.8Ø	&Ø1Ø3.31	&7.471	&Ø7.836	-Ø14Ø.Ø3
&647.38Ø	&13.691	&Ø283.68	&Ø179.61	&Ø1Ø3.33	&Ø7.422	&Ø4.285	-Ø119.99
&647.4Ø2	&Ø13.758	&Ø283.75	&Ø179.55	&1Ø3.3Ø7	&Ø7.446	&Ø6.329	-Ø12Ø.Ø1
&647.49Ø	&13.798	&Ø283.79	&Ø179.51	&Ø1Ø3.33	&Ø7.477	&Ø3.9Ø7	-Ø12Ø.Ø1
&647.49Ø	&13.815	&Ø283.81	&Ø179.47	&Ø1Ø3.28	&Ø7.489	&Ø4.376	-Ø6Ø.Ø51
&647.534	&Ø13.835	&Ø283.83	&Ø179.45	&Ø1Ø3.28	&Ø7.452	&Ø4.562	-Ø2Ø.ØØ3
&647.6ØØ	&13.895	&Ø283.89	&Ø179.38	&Ø1Ø3.28	&7.416	&Ø4.768	-Ø1ØØ.Ø6
&647.666	&Ø13.957	&Ø283.95	&Ø179.32	&Ø1Ø3.27	&Ø7.422	&Ø5.441	-Ø12Ø.Ø1
&647.666	&Ø13.969	&Ø283.96	&Ø179.3Ø	&Ø1Ø3.27	&Ø7.44Ø	&3.794	-Ø1ØØ.Ø2
&647.666	&Ø13.925	&Ø283.92	&Ø179.37	&Ø1Ø3.3Ø	&Ø7.452	&Ø7.495	-Ø12Ø.Ø1
&647.556	&Ø13.794	&Ø283.79	&Ø179.51	&Ø1Ø3.31	&7.453	&Ø2.8Ø9	-Ø6Ø.Ø51
&647.468	&Ø13.685	&Ø283.68	&Ø179.6Ø	&Ø1Ø3.29	&Ø7.373	-.2Ø6	-Ø4Ø.Ø78
&647.38Ø	&13.621	&Ø283.62	&179.659	&Ø1Ø3.28	&7.349	&Ø5.765	-Ø12Ø.Ø1
&647.292	&Ø13.524	&Ø283.52	&Ø179.76	&Ø1Ø3.28	&Ø7.458	&Ø3.3Ø5	-Ø1ØØ.Ø2
&647.161	&Ø13.417	&Ø283.41	&Ø179.87	&Ø1Ø3.29	&Ø7.526	&Ø2.283	-Ø179.97
&647.117	&Ø13.383	&Ø283.38	&Ø179.9Ø	&Ø1Ø3.29	&Ø7.483	&Ø.717	-Ø99.998
&647.183	&Ø13.474	&Ø283.47	&Ø179.81	&Ø1Ø3.28	&Ø7.336	&Ø.8ØØ	-1ØØ.Ø2Ø
&647.271	&Ø13.582	&Ø283.57	&Ø179.72	&Ø1Ø3.3Ø	&Ø7.324	&Ø1.891	-Ø8Ø.ØØ2
&647.249	&Ø13.555	&Ø283.55	&Ø179.78	&1Ø3.335	&Ø7.44Ø	&6.547	-Ø12Ø.Ø1
&647.2Ø5	&Ø13.457	&Ø283.45	&Ø179.88	&Ø1Ø3.34	&Ø7.568	&Ø2.556	-Ø159.98
&647.161	&Ø13.463	&Ø283.46	&Ø179.85	&Ø1Ø3.31	&Ø7.55Ø	&.925	-Ø159.98
&647.314	&Ø13.623	&Ø283.62	&Ø179.67	&1Ø3.293	&Ø7.379	&Ø1.498	-Ø119.99
&647.4Ø2	&Ø13.7Ø2	&Ø283.7Ø	&179.594	&Ø1Ø3.29	&Ø7.275	&Ø2.598	-Ø8Ø.Ø68
&647.4Ø2	&Ø13.713	&Ø283.71	&Ø179.57	&Ø1Ø3.28	&Ø7.336	&Ø4.579	-Ø14Ø.Ø1
&647.4Ø2	&Ø13.714	&Ø283.71	&Ø179.57	&Ø1Ø3.28	&Ø7.526	&Ø3.669	-Ø99.976
&647.446	&Ø13.7Ø4	&Ø283.7Ø	&Ø179.59	&Ø1Ø3.29	&Ø7.532	&Ø2.37Ø	-119.993
&647.38Ø	&13.659	&Ø283.65	&Ø179.61	&Ø1Ø3.27	&Ø7.4Ø4	&Ø1.379	-Ø119.99
&647.446	&Ø13.739	&Ø283.73	&Ø179.53	&Ø1Ø3.27	&Ø7.324	&Ø2.966	-Ø119.99
&647.534	&Ø13.811	&Ø283.81	&179.47Ø	&1Ø3.28Ø	&7.361	&Ø1.562	-Ø119.99
&647.556	&Ø13.815	&Ø283.81	&Ø179.47	&1Ø3.285	&Ø7.52Ø	&4.518	-Ø8Ø.Ø68
&647.534	&Ø13.813	&Ø283.81	&Ø179.48	&Ø1Ø3.29	&Ø7.5Ø7	&Ø3.314	-Ø8Ø.Ø46
&647.578	&Ø13.827	&Ø283.82	&Ø179.45	&Ø1Ø3.27	&Ø7.391	&Ø4.672	-Ø99.998
&647.776	&Ø14.ØØ3	&Ø284.ØØ	&Ø179.25	&Ø1Ø3.25	&Ø7.324	&Ø5.966	-Ø4Ø.122

ε647.82Ø	ε14.Ø27	εØ284.Ø2	εØ179.25	εØ1Ø3.28	ε7.52Ø	ε4.312	-Ø16Ø.46
ε647.864	εØ14.ØØ9	εØ284.ØØ	εØ179.25	εØ1Ø3.26	εØ7.452	εØ3.585	-Ø239.96
ε647.9Ø8	εØ14.172	εØ284.17	εØ179.Ø6	εØ1Ø3.23	εØ7.355	εØ3.362	-Ø359.23
ε648.Ø18	εØ14.266	εØ284.26	εØ178.98	εØ1Ø3.25	εØ7.33Ø	ε3.71Ø	-359.Ø99
ε647.996	εØ14.196	εØ284.19	εØ179.Ø9	εØ1Ø3.28	εØ7.477	εØ3.853	-Ø359.69
ε647.886	εØ14.Ø46	εØ284.Ø4	εØ179.22	ε1Ø3.266	εØ7.513	ε.364	-Ø359.69
ε647.886	εØ14.Ø33	εØ284.Ø3	εØ179.22	εØ1Ø3.25	εØ7.416	εØ3.7Ø1	-Ø359.71
ε647.93Ø	ε14.156	εØ284.15	εØ179.Ø7	εØ1Ø3.23	εØ7.349	εØ.888	εØ359.69
ε647.974	εØ14.232	εØ284.23	ε179.Ø19	εØ1Ø3.25	ε7.385	εØ3.Ø88	-Ø359.75
ε647.996	εØ14.223	εØ284.22	εØ179.Ø4	εØ1Ø3.26	εØ7.434	εØ3.484	-Ø359.69
ε647.93Ø	ε14.182	εØ284.18	εØ179.Ø9	εØ1Ø3.27	εØ7.446	εØ2.741	-Ø359.71
ε647.974	εØ14.2ØØ	ε284.2ØØ	ε179.Ø5Ø	ε1Ø3.25Ø	ε7.397	εØ2.943	-Ø359.69
ε648.Ø83	εØ14.349	εØ284.34	εØ178.89	εØ1Ø3.24	εØ7.375	-Ø.873	-Ø359.69
ε648.171	εØ14.4Ø7	εØ284.4Ø	εØ178.86	εØ1Ø3.27	εØ7.397	εØ4.732	-Ø359.73
ε648.Ø62	εØ14.26Ø	ε284.26Ø	ε179.Ø25	εØ1Ø3.28	εØ7.416	εØ3.431	-Ø359.69
ε647.952	εØ14.Ø94	εØ284.Ø9	εØ179.17	εØ1Ø3.26	εØ7.385	-.349	-Ø359.67
ε647.864	εØ14.Ø19	εØ284.Ø1	εØ179.23	εØ1Ø3.25	εØ7.397	εØ2.844	-Ø359.69
ε647.864	εØ13.993	εØ283.99	εØ179.25	εØ1Ø3.25	ε7.465	εØ2.476	-Ø359.69
ε647.82Ø	ε13.99Ø	ε283.988	εØ179.25	εØ1Ø3.24	εØ7.428	εØ5.848	-Ø359.67
ε647.864	εØ13.99Ø	ε283.988	εØ179.25	εØ1Ø3.24	εØ7.3Ø6	εØ3.395	-Ø359.69
ε647.864	εØ13.994	εØ283.99	εØ179.23	εØ1Ø3.22	εØ7.312	εØ3.356	-Ø359.69
ε647.886	εØ14.ØØ9	εØ284.ØØ	εØ179.23	εØ1Ø3.24	εØ7.44Ø	ε4.Ø38	-Ø359.67
ε647.864	εØ13.975	εØ283.97	εØ179.29	εØ1Ø3.26	εØ7.587	εØ.7Ø5	-Ø359.67
ε647.82Ø	ε13.962	εØ283.96	εØ179.3Ø	εØ1Ø3.26	εØ7.513	εØ3.Ø25	-Ø359.67
ε647.842	εØ13.983	εØ283.98	εØ179.25	εØ1Ø3.24	εØ7.33Ø	ε1.8Ø8	-Ø359.69
ε647.996	εØ14.161	εØ284.15	εØ179.Ø5	εØ1Ø3.21	εØ7.33Ø	ε2.616	-Ø359.71
ε648.Ø83	εØ14.269	εØ284.26	εØ178.97	εØ1Ø3.24	εØ7.477	εØ4.952	-Ø359.71
ε648.Ø62	εØ14.254	εØ284.25	εØ179.Ø1	εØ1Ø3.26	εØ7.617	εØ4.389	-Ø359.69
ε648.Ø83	εØ14.159	εØ284.15	εØ179.Ø9	εØ1Ø3.25	εØ7.513	εØ.654	-Ø359.71
ε648.Ø62	εØ14.145	εØ284.14	εØ179.1Ø	εØ1Ø3.24	εØ7.373	-Ø.737	-Ø359.69
ε648.Ø4Ø	ε14.131	εØ284.13	εØ179.12	εØ1Ø3.25	εØ7.355	εØ5.1Ø9	-Ø359.69
ε647.9Ø8	εØ14.Ø13	εØ284.Ø1	εØ179.25	εØ1Ø3.26	εØ7.477	εØ4.1ØØ	-359.692
ε647.842	εØ13.933	εØ283.93	εØ179.32	εØ1Ø3.25	εØ7.52Ø	ε1.Ø85	-Ø359.67
ε647.82Ø	ε13.9Ø1	εØ283.9Ø	ε179.376	εØ1Ø3.27	εØ7.477	εØ2.549	-Ø359.64
ε647.578	εØ13.721	εØ283.71	εØ179.56	εØ1Ø3.28	εØ7.44Ø	ε2.285	-Ø359.67
ε647.358	εØ13.514	εØ283.51	εØ179.78	εØ1Ø3.29	εØ7.483	εØ2.845	-Ø359.62
ε647.292	εØ13.458	εØ283.45	εØ179.83	εØ1Ø3.28	εØ7.471	εØ4.78Ø	-359.648
ε647.4Ø2	εØ13.575	εØ283.57	εØ179.69	εØ1Ø3.26	εØ7.434	εØ1.995	-Ø359.67
ε647.468	εØ13.672	εØ283.67	ε179.626	εØ1Ø3.29	εØ7.428	εØ2.248	-Ø359.67

ε647.292	ε013.466	ε0283.46	ε0179.89	ε0103.35	ε07.434	ε02.982	-0359.64
ε647.007	ε013.216	ε0283.21	ε0180.16	ε0103.37	ε07.428	ε02.769	-0359.64
ε646.897	ε013.143	ε0283.14	ε0180.22	ε0103.36	ε07.410	ε2.164	-0359.61
ε646.897	ε013.146	ε0283.14	ε0180.20	ε0103.35	ε07.434	ε01.142	-0359.62
ε646.897	ε013.177	ε0283.17	ε0180.18	ε0103.35	ε07.501	-02.926	-0359.64
ε646.853	ε013.093	ε0283.09	ε0180.31	ε0103.403	ε07.465	ε.213	-0359.64
ε646.765	ε013.043	ε0283.04	ε0180.35	ε0103.39	ε07.373	ε01.731	-0359.62
ε646.765	ε013.042	ε0283.04	ε0180.35	ε0103.39	ε07.300	ε3.135	-0359.58
ε646.765	ε013.062	ε0283.06	ε180.319	ε0103.37	ε07.422	ε01.613	-0359.62
ε646.765	ε013.073	ε0283.07	ε0180.29	ε0103.37	ε7.593	-0.609	-0359.62
ε646.853	ε013.178	ε0283.17	ε0180.17	ε103.348	ε07.520	ε.474	-0359.67
ε647.051	ε013.357	ε0283.35	ε0179.97	ε0103.33	ε07.349	ε0.969	-0359.62
ε647.139	ε013.425	ε0283.42	ε0179.90	ε0103.33	ε07.294	ε03.730	-359.648
ε647.161	ε013.442	ε0283.44	ε0179.90	ε0103.34	ε07.422	ε0.647	-0359.62
ε647.314	ε013.559	ε283.549	ε0179.75	ε0103.30	ε07.526	-0.546	-0359.62
ε647.556	ε013.782	ε0283.78	ε179.492	ε0103.27	ε07.465	-.289	-0359.69
ε647.754	ε013.936	ε0283.93	ε0179.33	ε0103.26	ε07.373	-02.028	-0359.69
ε647.732	ε013.958	ε0283.95	ε0179.31	ε0103.27	ε07.397	-.346	-0359.67
ε647.754	ε013.969	ε283.958	ε0179.30	ε0103.26	ε07.440	-1.920	-359.692
ε647.886	ε014.093	ε0284.09	ε0179.15	ε0103.24	ε07.477	-01.269	-0359.71
ε648.105	ε014.279	ε0284.27	ε0178.96	ε0103.23	ε07.453	ε03.362	-0299.81
ε648.193	ε014.413	ε0284.41	ε0178.83	ε103.241	ε07.385	ε01.483	-0359.69
ε648.231	ε014.470	ε284.469	ε0178.78	ε0103.25	ε07.349	ε01.551	-0359.71
ε648.259	ε014.476	ε0284.47	ε0178.78	ε0103.25	ε07.428	ε0.564	-0359.73
ε648.281	ε014.428	ε0284.42	ε0178.84	ε0103.27	ε07.526	ε05.455	-0359.71
ε648.237	ε014.384	ε0284.38	ε0178.86	ε103.244	ε07.477	ε0.549	-0359.71
ε0000.0	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00	ε0000.00
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Run 3 Leg 3 1/21/66 Printed 6/7/66

33ØØ ØØ

BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
8636.899	8Ø16.398	8Ø276.39	8Ø176.35	892.747	8Ø7.965	-.1Ø5	-Ø.5Ø5
8638.943	8Ø16.Ø58	8Ø276.Ø5	8Ø176.46	892.516	8Ø7.678	-Ø2.161	-Ø.527
8638.3Ø6	8Ø15.474	8Ø275.47	8Ø176.96	8Ø92.433	8Ø7.684	-Ø1.736	-.3Ø8
8637.888	8Ø14.933	8Ø274.93	8Ø177.39	8Ø92.332	8Ø7.642	-Ø3.Ø83	-.461
8637.6Ø3	8Ø14.635	8Ø274.63	8Ø177.63	8Ø92.271	8Ø7.55Ø	-5.813	-.396
8637.471	8Ø14.483	8Ø274.48	8Ø177.78	8Ø92.263	8Ø7.532	-Ø5.646	-.396
8637.251	8Ø14.282	8Ø274.28	8Ø177.97	8Ø92.258	8Ø7.532	-Ø3.359	-.352
8637.ØØ9	8Ø14.Ø41	8Ø274.Ø4	8178.226	8Ø92.266	8Ø7.556	-Ø6.274	-.352
8636.79Ø	813.8Ø8	8Ø273.8Ø	8Ø178.46	8Ø92.274	8Ø7.52Ø	-4.911	-.374
8636.592	8Ø13.653	8Ø273.65	8Ø178.63	8Ø92.291	8Ø7.471	-Ø3.624	-.286
8636.438	8Ø13.526	8Ø273.52	8Ø178.78	8Ø92.313	8Ø7.452	-Ø3.518	-.242
8636.196	8Ø13.366	8Ø273.36	8Ø178.97	8Ø92.343	8Ø7.416	-Ø5.ØØ4	-.286
8636.Ø42	8Ø13.213	8Ø273.21	8Ø179.16	892.37Ø	87.422	-Ø5.953	-.264
8635.8Ø1	8Ø13.Ø72	8Ø273.Ø7	8Ø179.3Ø	892.378	87.379	-Ø5.822	-.198
8635.669	8Ø12.956	8Ø272.95	8Ø179.45	8Ø92.436	8Ø7.318	-Ø4.644	-Ø4Ø.254
8635.471	8Ø12.8Ø5	8Ø272.8Ø	8Ø179.64	892.444	8Ø7.3ØØ	-8.356	-.242
8635.361	8Ø12.71Ø	8272.7Ø8	8Ø179.73	8Ø92.447	8Ø7.281	-Ø6.167	-Ø2Ø.215
8635.295	8Ø12.7Ø3	8Ø272.7Ø	8Ø179.74	8Ø92.447	8Ø7.251	-Ø6.22Ø	-4Ø.188
8635.251	8Ø12.684	8Ø272.68	8Ø179.77	8Ø92.461	8Ø7.2Ø8	-Ø5.945	-.22Ø
8635.Ø54	8Ø12.5Ø9	8Ø272.5Ø	8Ø18Ø.ØØ	8Ø92.516	8Ø7.227	-Ø8.1Ø2	-.198
8634.856	8Ø12.367	8Ø272.36	8Ø18Ø.15	8Ø92.519	8Ø7.245	-Ø6.193	-.198
8634.834	8Ø12.396	8Ø272.39	8Ø18Ø.Ø7	8Ø92.472	8Ø7.172	-Ø4.2Ø8	-Ø8Ø.Ø63
8635.Ø1Ø	812.574	8Ø272.57	8Ø179.86	8Ø92.442	8Ø7.Ø8Ø	-6.439	-Ø2Ø.193
8635.Ø32	8Ø12.594	8Ø272.59	8Ø179.87	8Ø92.469	8Ø7.111	-Ø6.523	-.22Ø
8634.878	8Ø12.437	8Ø272.43	8Ø18Ø.Ø8	8Ø92.521	8Ø7.166	-Ø5.623	-Ø4Ø.144
8634.834	8Ø12.386	8Ø272.38	8Ø18Ø.12	8Ø92.51Ø	87.111	-Ø4.82Ø	-4Ø.166
8634.922	8Ø12.51Ø	8272.5Ø8	8Ø179.92	8Ø92.436	8Ø6.982	-Ø6.2Ø2	-.176
8635.Ø76	8Ø12.626	8Ø272.62	8Ø179.82	8Ø92.447	8Ø6.946	-Ø6.571	-Ø4Ø.144
8635.Ø1Ø	812.574	8Ø272.57	8Ø179.92	8Ø92.497	8Ø7.ØØ1	-Ø3.723	-.176
8634.944	8Ø12.462	8Ø272.46	8Ø18Ø.Ø3	8Ø92.494	8Ø6.964	-Ø7.236	-Ø2Ø.171
8634.966	8Ø12.548	8Ø272.54	8Ø179.88	8Ø92.431	8Ø6.946	-Ø5.324	-Ø2Ø.171
8634.131	8Ø11.749	8Ø271.74	8Ø179.74	8Ø91.494	8Ø6.9Ø3	-Ø5.14Ø	-.242
8634.131	8Ø11.847	8Ø271.84	8Ø179.84	8Ø91.689	8Ø6.934	-Ø6.467	-Ø8Ø.134
8634.197	8Ø11.843	8Ø271.84	8179.973	8Ø91.813	8Ø6.86Ø	-3.Ø87	-Ø2Ø.193
8634.197	8Ø11.859	8Ø271.85	8Ø179.91	8Ø91.769	8Ø6.8Ø5	-Ø5.995	-Ø4Ø.166
8634.263	8Ø11.99Ø	8271.989	8Ø179.77	8Ø91.763	8Ø6.854	-Ø7.35Ø	-.176
8634.329	8Ø12.Ø15	8Ø272.Ø1	8Ø179.76	8Ø91.774	8Ø6.891	-Ø3.733	-.198
8634.241	8Ø11.99Ø	8271.989	8Ø179.81	8Ø91.8Ø2	8Ø6.818	-Ø4.794	-Ø2Ø.171
8634.263	8Ø11.965	8Ø271.96	8Ø179.8Ø	8Ø91.771	8Ø6.7Ø2	-Ø7.9Ø2	-Ø4Ø.166
8634.438	8Ø12.Ø82	8Ø272.Ø8	8Ø179.66	8Ø91.75Ø	86.683	-Ø6.Ø8Ø	-4Ø.144
8634.46Ø	812.127	8Ø272.12	8Ø179.62	8Ø91.75Ø	86.812	-Ø3.793	-Ø2Ø.193
8634.417	8Ø12.123	8Ø272.12	8179.643	8Ø91.763	8Ø6.835	-Ø4.468	-.22Ø
8634.417	8Ø12.Ø86	8Ø272.Ø8	8Ø179.68	8Ø91.771	8Ø6.763	-Ø4.Ø99	-.22Ø

8634.504	8012.162	80272.16	80179.58	8091.744	806.047	-02.369	-.193
8634.504	8012.171	80272.17	8179.574	8091.744	806.720	-3.718	-.198
8634.504	8012.175	80272.17	80179.56	8091.741	806.720	-6.943	-.220
8634.614	8012.268	80272.26	80179.43	8091.697	806.653	-04.333	-.242
8634.724	8012.352	80272.35	80179.33	8091.686	806.622	-01.803	-020.193
8634.724	8012.357	80272.35	80179.33	8091.689	806.653	-05.427	-020.193
8634.724	8012.358	80272.35	80179.33	8091.692	806.696	-03.456	-020.215
8634.856	8012.452	80272.45	8179.182	8091.631	806.592	-03.881	-.308
8635.010	812.568	80272.56	80179.04	8091.609	806.598	-03.414	-.396
8634.988	8012.501	80272.49	80179.16	8091.662	806.677	-04.498	-.396
8634.790	812.360	8272.359	80179.32	8091.631	806.714	-04.485	-.352
8634.834	8012.371	80272.37	8179.278	8091.648	806.604	-05.911	-.417
8634.944	8012.412	80272.41	80179.07	8091.483	806.555	-03.205	-.374
8635.164	8012.659	80272.65	80179.02	8091.686	806.641	-03.595	-.417
8636.812	8013.763	80273.76	80179.11	8092.876	806.732	-02.976	-.461
8637.888	8013.589	80273.58	80179.16	8092.755	806.696	-06.698	-.308
8637.866	8013.599	80273.59	80179.14	8092.744	806.683	-02.502	-.374
8637.932	8013.707	80273.70	80179.01	8092.716	806.738	-0.834	-.374
8637.976	8013.802	80273.80	80178.91	8092.714	806.812	-01.877	-.352
8638.020	813.809	80273.80	80178.92	8092.727	806.799	-04.061	-.308
8637.844	8013.597	80273.59	80179.11	892.705	806.866	-01.009	-.374
8637.734	8013.513	80273.51	8179.165	8092.675	806.860	-3.551	-.330
8637.844	8013.703	80273.70	80178.99	8092.694	806.891	801.004	-.396
8638.020	813.834	80273.83	80178.87	8092.711	806.940	-4.017	-.330
8637.976	8013.782	80273.78	80178.93	8092.719	806.946	-05.045	-.352
8637.822	8013.638	80273.63	80179.05	892.686	806.909	-08.270	-.308
8637.844	8013.630	8273.628	80179.04	8092.672	806.909	-04.644	-020.215
8637.932	8013.719	80273.71	80178.99	8092.714	807.074	-03.713	-020.369
8637.756	8013.599	80273.59	80179.12	8092.722	807.184	-03.414	-.308
8637.668	8013.460	8273.458	80179.24	8092.705	807.178	-04.600	-.308
8637.646	8013.466	80273.46	80179.23	8092.697	807.117	-05.092	-.330
8637.800	813.624	80273.62	80179.09	8092.719	807.080	-4.335	-.330
8637.756	8013.645	80273.64	80179.08	892.725	807.233	-03.104	-.286
8637.756	8013.571	80273.57	80179.18	8092.752	807.349	-02.106	-.330
8637.712	8013.549	80273.54	80179.18	8092.736	807.343	-06.123	-.330
8637.866	8013.719	80273.71	80178.98	8092.700	87.239	-04.104	-.330
8637.976	8013.840	8273.840	8178.868	8092.708	807.251	-05.539	-.396
8638.064	8013.828	80273.82	80178.88	8092.711	807.367	-03.377	-.308
8637.910	813.690	8273.689	80178.99	8092.683	807.465	-04.706	-.396
8637.866	8013.654	80273.65	80179.00	8092.656	807.452	-01.323	-.352
8637.976	8013.818	80273.81	80178.87	8092.692	807.324	-03.542	-.352
8638.064	8013.879	80273.87	80178.82	8092.700	87.263	-03.753	-.396
8637.932	8013.708	80273.70	80179.00	892.708	807.385	-02.664	-.330
8637.625	8013.460	8273.458	80179.25	8092.711	807.562	-03.100	-.308
8637.559	8013.393	80273.39	80179.31	8092.711	807.574	-03.295	-.330
8637.712	8013.516	80273.51	80179.20	8092.719	807.489	-0.768	-.352
8637.734	8013.583	80273.58	80179.16	892.741	807.489	-01.730	-.286
8637.646	8013.422	80273.42	80179.33	892.752	807.599	-03.437	-.330
8637.493	8013.301	80273.30	80179.44	8092.747	807.617	-03.788	-.286

CONFIDENTIAL

637.427	&Ø13.274	&Ø27[illegible].27	&Ø179.47	&Ø92.749	&Ø7.611	-Ø2.Ø61	-.331
&637.427	&Ø13.242	&Ø273.24	&Ø179.53	&Ø92.774	&Ø7.599	-Ø1.819	-Ø2Ø.391
&637.273	&Ø13.148	&Ø273.14	&Ø179.65	&Ø92.8Ø7	&Ø7.66Ø	-1.73Ø	-.352
&637.141	&Ø13.Ø38	&Ø273.Ø3	&Ø179.79	&Ø92.834	&Ø7.727	-Ø4.22Ø	-2Ø.281
&637.Ø53	&Ø12.971	&Ø272.96	&Ø179.87	&Ø92.843	&Ø7.733	-Ø2.387	-.286
&637.ØØ9	&Ø12.956	&Ø272.95	&Ø179.87	&Ø92.826	&Ø7.69Ø	-2.525	-.242
&637.Ø31	&Ø13.Ø28	&Ø273.Ø2	&Ø179.78	&Ø92.81Ø	&7.642	-Ø2.435	-Ø2Ø.259
&637.Ø75	&Ø13.ØØ7	&Ø273.ØØ	&Ø179.85	&Ø92.856	&Ø7.7Ø9	-Ø4.Ø61	-.286
&636.746	&Ø12.786	&Ø272.78	&Ø18Ø.12	&Ø92.911	&Ø7.825	-Ø3.723	-.286
&636.614	&Ø12.648	&Ø272.64	&Ø18Ø.27	&Ø92.922	&Ø7.849	-Ø3.117	-Ø2Ø.193
&636.614	&Ø12.629	&Ø272.62	&Ø18Ø.29	&Ø92.92Ø	&7.794	-Ø4.781	-.286
&636.614	&Ø12.629	&Ø272.62	&Ø18Ø.28	&Ø92.914	&Ø7.678	-Ø1.129	-.242
&636.548	&Ø12.625	&Ø272.62	&Ø18Ø.29	&Ø92.92Ø	&7.684	-Ø6.31Ø	-.242
&636.526	&Ø12.545	&Ø272.54	&Ø18Ø.39	&Ø92.942	&Ø7.788	-Ø3.143	-Ø2Ø.215
&636.438	&Ø12.483	&Ø272.48	&Ø18Ø.46	&Ø92.947	&Ø7.812	-Ø6.5Ø5	-Ø2Ø.237
&636.35Ø	&12.433	&Ø272.43	&Ø18Ø.52	&Ø92.958	&Ø7.788	-Ø2.997	-Ø4Ø.166
&636.262	&Ø12.4ØØ	&272.398	&Ø18Ø.56	&Ø92.964	&Ø7.758	-Ø5.7Ø9	-.198
&636.24Ø	&12.391	&Ø272.39	&18Ø.563	&Ø92.953	&Ø7.758	-Ø2.844	-.242
&636.3Ø6	&Ø12.491	&Ø272.48	&Ø18Ø.42	&Ø92.917	&Ø7.788	-Ø7.Ø39	-Ø2Ø.3Ø3
&636.482	&Ø12.56Ø	&272.56Ø	&18Ø.368	&Ø92.928	&Ø7.831	-Ø5.978	-.33Ø
&636.416	&Ø12.537	&Ø272.53	&Ø18Ø.41	&Ø92.947	&Ø7.837	-Ø3.829	-.3Ø8
&636.394	&Ø12.451	&Ø272.45	&18Ø.5Ø8	&Ø92.958	&Ø7.825	-Ø4.951	-.33Ø
&636.394	&Ø12.424	&Ø272.42	&Ø18Ø.51	&Ø92.942	&Ø7.837	-Ø5.Ø31	-.352
&636.416	&Ø12.469	&Ø272.46	&Ø18Ø.45	&92.92Ø	&7.825	-Ø5.175	-.286
&636.416	&Ø12.559	&Ø272.55	&Ø18Ø.35	&Ø92.914	&Ø7.77Ø	-6.562	-.22Ø
&636.35Ø	&12.574	&Ø272.57	&Ø18Ø.34	&Ø92.922	&Ø7.776	-Ø7.236	-.176
&636.372	&Ø12.523	&Ø272.52	&Ø18Ø.42	&Ø92.947	&Ø7.8Ø6	-Ø2.2ØØ	-.198
&636.372	&Ø12.475	&Ø272.47	&Ø18Ø.46	&Ø92.942	&Ø7.837	-.237	-.198
&636.372	&Ø12.549	&Ø272.54	&Ø18Ø.34	&Ø92.898	&Ø7.794	-Ø6.448	-.22Ø
&636.57Ø	&12.697	&Ø272.69	&Ø18Ø.19	&Ø92.889	&Ø7.788	-Ø3.773	-.242
&636.68Ø	&12.747	&Ø272.74	&Ø18Ø.14	&92.887	&Ø7.758	-Ø7.Ø28	-.3Ø8
&636.68Ø	&12.75Ø	&272.749	&Ø18Ø.14	&Ø92.892	&Ø7.758	-Ø5.92Ø	-.33Ø
&636.636	&Ø12.725	&Ø272.72	&Ø18Ø.17	&Ø92.9ØØ	&7.776	-Ø5.Ø92	-.33Ø
&636.614	&Ø12.751	&Ø272.74	&Ø18Ø.12	&Ø92.873	&Ø7.745	-Ø3.9Ø6	-.242
&636.833	&Ø12.88Ø	&272.878	&Ø179.97	&92.848	&Ø7.77Ø	-4.137	-.33Ø
&636.921	&Ø12.952	&Ø272.95	&179.898	&Ø92.848	&Ø7.764	-Ø4.391	-.33Ø
&636.877	&Ø12.963	&Ø272.96	&Ø179.88	&Ø92.843	&Ø7.745	&.383	-Ø4Ø.188
&636.921	&Ø12.964	&Ø272.96	&Ø179.88	&Ø92.851	&Ø7.8Ø6	-Ø1.387	-.374
&636.921	&Ø12.965	&Ø272.96	&Ø179.88	&Ø92.851	&Ø7.776	&Ø4.781	-.286
&636.987	&Ø13.Ø19	&Ø273.Ø1	&Ø179.82	&Ø92.843	&Ø7.758	&Ø3.239	-Ø2Ø.325
&637.Ø31	&Ø13.Ø83	&Ø273.Ø8	&Ø179.78	&Ø92.865	&Ø7.776	&.Ø25	-.264
&637.Ø75	&Ø13.Ø83	&Ø273.Ø8	&Ø179.78	&Ø92.867	&Ø7.794	&Ø3.436	-.3Ø8
&637.Ø75	&Ø13.Ø8Ø	&273.Ø79	&Ø179.89	&Ø92.884	&Ø7.8Ø3	&4.Ø82	-.352
&637.Ø31	&Ø13.Ø79	&Ø273.Ø7	&Ø179.8Ø	&Ø92.887	&Ø7.77Ø	-7.685	-.3Ø8
&637.ØØ9	&Ø13.1Ø2	&Ø273.1Ø	&Ø179.75	&Ø92.856	&Ø7.739	-Ø4.725	-.286
&637.Ø53	&Ø13.113	&Ø273.11	&Ø179.75	&Ø92.865	&Ø7.794	-Ø.71Ø	-.352
&637.Ø75	&Ø13.Ø73	&Ø273.Ø7	&Ø179.81	&92.881	&Ø7.825	&Ø2.974	-.286
&637.Ø53	&Ø13.Ø71	&Ø273.Ø7	&Ø179.78	&Ø92.859	&Ø7.794	-Ø4.75Ø	-.374
&637.273	&Ø13.2Ø5	&Ø273.2Ø	&Ø179.61	&Ø92.821	&Ø7.745	-Ø5.Ø65	-.33Ø

CONFIDENTIAL

8637.251	8013.254	80273.25	80179.56	8092.813	807.721	-02.751	-.193
8637.185	8013.191	80273.18	80179.66	8092.856	807.825	-04.766	-.264
8637.097	8013.087	80273.08	80179.78	8092.873	807.837	-04.397	-.286
8637.075	8013.094	80273.09	80179.76	8092.854	807.794	-03.763	-.286
8637.207	8013.243	80273.24	80179.57	8092.812	807.727	-05.554	8.396
8637.317	8013.293	80273.29	80179.51	8092.812	807.727	-.204	-040.100
8637.273	8013.230	8273.230	8179.591	8092.821	807.794	-0.970	-.220
8637.141	8013.102	80273.10	80179.70	8092.802	807.812	-.479	-040.188
8637.141	8013.087	80273.08	80179.71	8092.796	807.770	-7.350	-.176
8637.075	8013.087	80273.08	80179.70	8092.796	807.788	-013.585	-060.073
8637.141	8013.098	80273.09	80179.69	8092.791	807.776	-03.419	-020.193
8637.141	8013.111	80273.10	80179.67	8092.788	807.721	-05.168	-0120.01
8637.163	8013.115	80273.11	80179.67	8092.788	807.745	-06.308	-020.215
8637.141	8013.113	80273.11	80179.67	8092.791	807.751	-03.728	-060.205
8637.163	8013.109	80273.10	80179.69	8092.807	807.776	-01.740	-.220
8637.185	8013.087	80273.08	80179.70	8092.796	807.745	-03.340	-40.144
8637.097	8013.089	80273.08	80179.70	8092.796	807.684	-09.239	-0100.04
8637.141	8013.139	80273.13	80179.65	8092.796	807.672	-01.602	-020.193
8637.229	8013.206	80273.20	80179.62	8092.832	807.739	-05.961	-.242
8637.207	8013.179	80273.17	80179.67	892.848	807.819	-03.048	-.154
8637.119	8013.102	80273.10	80179.75	892.851	807.806	-07.490	-40.122
8637.163	8013.090	8273.090	8179.764	8092.854	807.733	-05.945	-060.095
8637.097	8013.090	8273.087	80179.75	892.837	807.635	-06.003	-060.051
8637.165	8013.105	80273.10	80179.74	8092.848	807.721	-07.315	-040.166
8637.031	8013.015	80273.01	80179.86	892.873	807.806	-05.927	-60.095
8636.921	8012.992	80272.99	80179.88	8092.873	807.788	-07.236	-0120.05
8637.009	8012.993	80272.99	80179.87	8092.867	807.727	-05.038	-.176
8637.019	8012.980	8272.977	80179.89	8092.873	807.690	-3.943	-020.105
8636.877	8012.875	80272.87	80180.03	8092.909	807.733	-05.554	-020.083
8636.724	8012.833	80272.83	80180.08	8092.920	87.806	-06.891	-080.112
8636.768	8012.827	80272.82	80180.09	8092.922	807.825	-03.165	-040.122
8636.680	812.828	80272.82	80180.08	8092.914	807.751	-06.996	-040.078
8636.790	812.854	80272.85	80180.04	8092.895	807.690	-5.331	-.154
8636.812	8012.888	80272.88	80180.00	8092.889	807.684	-05.053	-.132
8636.790	812.885	80272.88	80180.03	892.914	807.825	-07.169	-.154
8636.768	8012.818	80272.81	80180.11	8092.931	807.794	-05.887	-020.105
8636.746	8012.815	80272.81	80180.10	8092.917	807.770	-4.662	-020.171
8636.877	8012.932	80272.93	80179.94	892.870	87.660	-3.585	-060.073
8636.987	8013.016	80273.01	80179.84	8092.862	807.654	-07.811	-060.095
8636.987	8013.038	80273.03	80179.82	8092.862	807.721	-04.693	-.198
8636.965	8013.040	8273.038	80179.82	8092.865	807.758	-05.945	-.110
8636.965	8013.033	80273.03	80179.85	8092.889	807.831	-07.697	-020.193
8637.031	8013.083	80273.08	80179.75	8092.834	807.733	-07.747	-020.149
8637.317	8013.311	80273.31	8179.473	8092.782	807.605	-07.315	-.220
8637.493	8013.455	80273.45	80179.30	8092.758	807.635	-04.186	-.198
8637.537	8013.484	80273.48	80179.28	8092.769	807.770	-7.994	-.176
8637.449	8013.345	80273.34	80179.43	8092.780	87.867	-07.648	-.176
8637.339	8013.249	80273.24	80179.51	8092.760	87.800	-12.007	-040.144
8637.405	8013.346	80273.34	80179.40	8092.747	807.684	-08.228	-.198

8637.646	8Ø13.584	8Ø273.58	8Ø179.14	8Ø92.73Ø	87.642	-Ø7.466	-.22Ø
8637.734	8Ø13.644	8Ø273.64	8Ø179.Ø8	8Ø92.725	8Ø7.684	-Ø8.564	-.176
8637.663	8Ø13.597	8Ø273.59	8Ø179.16	892.755	8Ø7.745	-Ø9.591	-.198
8637.625	8Ø13.522	8Ø273.52	8Ø179.22	892.741	8Ø7.751	-Ø7.635	-.242
8637.646	8Ø13.513	8Ø273.51	8Ø179.22	892.733	8Ø7.727	-Ø4.Ø66	-Ø2Ø.237
8637.6Ø3	8Ø13.5Ø8	8Ø273.5Ø	8Ø179.23	8Ø92.747	8Ø7.77Ø	-7.562	-.198
8637.646	8Ø13.535	8Ø273.5Ø	8Ø179.23	8Ø92.741	8Ø7.788	-Ø3.126	-.176
8637.756	8Ø13.699	8Ø273.69	8Ø179.ØØ	8Ø92.7Ø3	8Ø7.7Ø3	-Ø5.878	-.198
8637.998	8Ø13.859	8Ø273.85	8Ø178.84	8Ø92.7Ø5	87.623	-Ø4.438	-Ø2Ø.259
8637.998	8Ø13.827	8Ø273.82	8Ø178.88	8Ø92.714	8Ø7.7Ø9	-Ø7.Ø71	-.3Ø8
8637.844	8Ø13.6Ø6	8Ø273.6Ø	8Ø179.Ø8	8Ø92.689	8Ø7.398	-Ø6.912	-.264
8637.8ØØ	813.613	8Ø273.61	8Ø179.Ø5	8Ø92.664	8Ø7.867	-Ø5.797	-.22Ø
8638.1Ø8	8Ø13.971	8Ø273.96	8Ø178.69	8Ø92.664	8Ø7.666	-Ø7.147	-.242
8638.372	8Ø14.182	8Ø274.18	8178.487	8Ø92.667	8Ø7.642	-Ø5.97Ø	-.264
8638.372	8Ø14.211	8Ø274.21	8178.473	8Ø92.683	8Ø7.715	-Ø2.446	-.264
8638.3Ø6	8Ø14.144	8Ø274.14	8Ø178.55	8Ø92.7ØØ	87.825	-Ø5.725	-.286
8638.35Ø	814.139	8Ø274.13	8Ø178.52	8Ø92.659	8Ø7.849	-Ø4.Ø55	-.264
8638.635	8Ø14.436	8Ø274.43	8Ø178.2Ø	8Ø92.639	8Ø7.758	-Ø6.571	-.3Ø8
8638.877	8Ø14.726	8Ø274.72	8Ø177.93	8Ø92.659	8Ø7.666	-Ø3.763	-.3Ø8
8638.937	8Ø14.83Ø	8274.828	8Ø177.87	8Ø92.7ØØ	87.697	-Ø4.357	-.33Ø
8638.677	8Ø14.655	8Ø274.65	8Ø178.Ø7	8Ø92.727	8Ø7.819	-Ø7.2Ø2	-.3Ø8
8638.613	8Ø14.376	8Ø274.37	8Ø178.29	[illegible]	87.831	-Ø6.985	-.286
8638.547	8Ø14.352	8Ø274.3Ø	8Ø178.35	8Ø92.653	8Ø7.77Ø	[illegible]	-.242
8638.591	8Ø14.29Ø	8274.29Ø	8178.355	8Ø92.645	8Ø7.751	-Ø5.741	-.264
8638.547	8Ø14.29Ø	8274.29Ø	8178.355	8Ø92.645	8Ø7.727	-Ø2.Ø17	-.33Ø
8638.525	8Ø14.288	8Ø274.28	8Ø178.36	8Ø92.65Ø	87.727	-Ø4.339	-.286
8638.525	8Ø14.249	8Ø274.24	8Ø178.41	8Ø92.661	8Ø7.721	-Ø6.562	-.286
8638.5Ø3	8Ø14.245	8Ø274.24	8Ø178.41	8Ø92.561	8Ø7.77Ø	-7.214	-.264
8638.5Ø3	8Ø14.272	8Ø274.27	8Ø178.36	8Ø92.637	8Ø7.3Ø4	-6.713	-.286
8638.635	8Ø14.429	8Ø274.42	8Ø178.19	8Ø92.626	8Ø7.7Ø9	-Ø7.85Ø	-.3Ø8
8638.767	8Ø14.576	8Ø274.57	8Ø178.Ø6	8Ø92.645	8Ø7.617	-Ø1Ø.235	-.3Ø8
8638.833	8Ø14.647	8Ø274.64	8Ø178.Ø2	8Ø92.672	8Ø7.69Ø	-4.474	-.33Ø
8638.833	8Ø14.656	8Ø274.65	8Ø178.Ø2	8Ø92.678	8Ø7.849	-Ø7.147	-.33Ø
8638.833	8Ø14.656	8Ø274.65	8Ø178.Ø2	8Ø92.681	8Ø7.861	-Ø4.248	-.352
8638.877	8Ø14.7Ø5	8Ø274.7Ø	8Ø177.95	8Ø92.664	8Ø7.684	-Ø7.315	-.352
8638.965	8Ø14.795	8Ø274.79	8Ø177.89	8Ø92.686	8Ø7.623	-Ø6.Ø97	-.374
8638.965	8Ø14.769	8Ø274.76	8Ø177.93	8Ø92.7Ø5	8Ø7.69Ø	-6.141	-.374
8638.899	8Ø14.635	8Ø274.63	8Ø178.Ø4	8Ø92.681	8Ø7.88Ø	-2.679	-.33Ø
8638.833	8Ø14.6ØØ	8274.598	8Ø178.Ø7	8Ø92.67Ø	87.916	-Ø7.27Ø	-.352
8638.855	8Ø14.712	8Ø274.71	8177.946	8Ø92.656	8Ø7.758	-Ø8.313	-.33Ø
8638.941	8Ø14.797	8Ø274.79	8Ø177.9Ø	8Ø92.697	8Ø7.666	-Ø7.253	-Ø2Ø.347
8638.877	8Ø14.628	8Ø274.62	8Ø178.Ø6	8Ø92.697	8Ø7.666	-Ø4.421	-.374
8638.745	8Ø14.5Ø3	8Ø274.5Ø	8Ø178.16	892.661	8Ø7.764	-Ø7.538	-.352
8638.7Ø1	8Ø14.492	8Ø274.49	8Ø178.17	8Ø92.664	8Ø7.886	-Ø7.735	-.33Ø
8638.635	8Ø14.4ØØ	8274.4ØØ	8178.267	8Ø92.667	8Ø7.874	-Ø4.656	-.3Ø8
8638.525	8Ø14.257	8Ø274.25	8Ø178.4Ø	8Ø92.656	8Ø7.739	-Ø7.623	-.3Ø8
8638.459	8Ø14.2ØØ	8274.199	8Ø178.45	8Ø92.653	8Ø7.654	-Ø6.42Ø	-.264
8638.481	8Ø14.224	8Ø274.22	8Ø178.41	8Ø92.634	8Ø7.69Ø	-4.756	-.286
8638.547	8Ø14.357	8Ø274.35	8Ø178.28	8Ø92.642	8Ø7.825	-Ø5.686	-.33Ø
8638.547	8Ø14.393	8Ø274.39	8Ø178.26	[illegible]	8Ø7.825	-Ø4.327	[illegible]

6638.547	6014.541	60274.54	6178.322	6092.601	607.790	-09.755	-.370
6638.525	6014.331	60274.29	60178.34	6192.645	607.666	-07.103	-040.290
6638.657	6014.481	60274.48	6178.151	6092.631	607.604	-04.061	-.390
6638.355	6014.648	60274.64	60178.01	6092.664	607.739	-06.054	-.374
6638.835	6014.637	60274.63	60178.06	6092.697	607.739	-07.598	-.352
6638.679	6014.385	60274.38	60178.29	6092.670	607.759	-06.238	-.330
6638.569	6014.247	60274.24	60178.41	6092.661	607.727	-01.907	-020.201
6638.503	6014.210	6274.208	60178.42	6192.637	607.733	-04.763	-.303
6638.525	6014.312	60274.31	60178.31	6092.631	607.750	-07.393	-.330
6638.569	6014.399	60274.39	60178.25	6092.653	607.776	-07.685	-.300
6638.547	6014.394	60274.39	60178.27	6092.667	607.733	-06.964	-.286
6638.503	6014.242	60274.24	60178.43	6092.675	607.715	-03.065	-.300
6638.350	614.005	60274.00	60178.60	6092.609	607.690	-4.718	-.300
6638.196	6013.942	60273.94	60178.74	6092.686	607.745	-03.654	-020.201
6638.064	6013.802	60273.80	60178.88	6092.683	607.819	-07.303	-040.210
6637.822	6013.634	60273.63	60179.00	692.714	607.819	-07.270	-20.219
6637.712	6013.524	60273.52	60179.20	6092.725	607.703	-04.648	-40.108
6637.668	6013.486	60273.48	60179.25	6092.738	607.639	-06.420	-20.219
6637.537	6013.380	6273.378	60179.39	692.769	607.791	-07.060	-.220
6637.295	6013.195	60273.19	60179.61	6092.810	67.067	-07.747	-020.171
6637.163	6013.066	60273.06	60179.75	6092.823	607.031	-07.901	-020.193
6637.097	6013.046	60273.04	60179.76	6092.812	607.703	-05.465	-300.101
6637.163	6013.115	60273.11	60179.67	6092.780	607.642	-04.299	-.173
6637.207	6013.151	60273.15	6179.654	6092.834	607.727	-04.456	-020.193
6637.097	6013.029	60273.02	60179.01	6092.845	607.910	-5.099	-020.171
6636.943	6012.943	60272.94	60179.92	692.002	607.916	-03.409	-.176
6636.921	6012.977	60272.97	60179.84	6092.023	607.703	-05.837	-.170
6637.207	6013.226	60273.22	60179.57	6092.796	607.574	-04.409	-020.193
6637.361	6013.341	60273.34	6179.409	6092.029	607.629	-02.290	-.190
6637.273	6013.287	60273.28	60179.57	6092.059	607.801	-00.740	-.190
6637.251	6013.199	60273.19	60179.66	6092.062	607.901	-05.317	-.198
6637.361	6013.325	60273.32	60179.46	6092.791	607.735	-03.059	-040.219
6637.668	6013.607	60273.60	60179.13	6092.744	607.550	-7.710	-.242
6637.800	613.717	60273.71	60179.02	6092.738	607.605	-05.701	-.264
6637.734	6013.652	60273.65	6179.124	6092.774	607.300	-7.941	-020.237
6637.559	6013.450	6273.450	6179.349	6092.799	607.806	-6.032	-.170
6637.537	6013.367	60273.36	60179.42	692.708	607.764	-05.479	-020.171
6637.501	6013.400	6273.397	60179.36	6092.763	607.611	-03.091	-.176
6637.625	6013.540	6273.530	60179.21	6092.749	607.617	-03.391	-.190
6637.646	6013.567	60273.56	60179.18	6192.752	607.704	-07.130	-020.215
6637.625	6013.506	60273.50	60179.20	692.735	607.074	-07.003	-.220
6637.501	6013.446	60273.44	60179.53	6092.703	607.012	-06.964	-000.134
6637.712	6013.603	6273.598	60179.12	6092.719	607.654	-07.202	-.020
6638.020	613.802	60273.80	60178.80	6092.609	607.611	-06.860	-.220
6638.174	6014.019	60274.01	60178.66	6092.606	607.739	-03.032	-.280
6638.152	6014.050	6274.040	60178.64	6092.097	607.092	-04.637	-020.237
6638.218	6014.049	60274.04	60178.63	6092.001	607.029	-05.099	-.220
6638.401	6014.290	6274.299	6178.359	6092.042	607.029	-05.539	-.264
6638.789	6014.635	60274.63	60178.00	692.634	607.593	-.397	-.330
6638.987	6014.045	60274.04	60177.03	6092.031	607.629	-04.067	-.300
6639.009	6014.924	60274.92	60177.76	6092.009	607.679	-13.040	-.359

0039.110	0015.012	00275.01	0177.605	0092.694	007.667	-4.186	-.352
0039.105	0015.053	00275.05	00177.66	092.711	007.640	-06.514	-.352
0039.163	0014.998	00274.99	00177.74	0092.744	007.693	-6.591	-.330
0039.110	0014.921	00274.91	00177.79	0092.714	007.660	-6.401	-.330
0039.097	0014.904	00274.90	00177.81	0092.710	007.642	-05.639	-.330
0038.855	0014.653	00274.65	00178.04	0093.697	007.604	-05.741	-.308
0038.657	0014.501	00274.49	00178.41	0092.917	007.773	-1.127	-.264
0038.569	0014.360	0274.359	00178.98	092.939	007.749	-07.114	-.220
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BEARING 1X.	BEARING 36X.	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
0038.591	0014.370	0274.370	0178.542	0092.911	007.684	-03.290	-.286
0038.591	0014.463	00274.46	0178.445	0092.996	007.604	-04.846	-.242
0038.591	0014.421	00274.41	00178.92	092.939	007.794	-04.675	-.200
0038.394	0014.204	00274.20	00178.76	0092.964	007.801	-05.693	-.198
0038.174	0013.992	00273.99	00178.98	0092.980	07.791	-01.705	-.198
0038.042	0013.890	0273.889	00179.09	0092.980	07.764	-06.054	-.198
0038.020	013.854	00273.85	00179.10	0092.955	007.733	-03.210	-.190
0037.998	0013.849	00273.84	00179.09	0092.944	007.776	-04.345	-.176
0037.998	0013.818	00273.81	00179.14	0092.961	007.764	-07.315	-.198
0037.778	0013.635	00273.63	00179.34	0092.993	007.727	-05.113	-.176
0037.625	0013.536	00273.50	00179.49	0092.999	007.751	-06.097	-.176
0037.581	0013.467	00273.46	00179.52	0092.994	007.837	-05.616	-020.171
0037.537	0013.432	00273.43	0179.577	0093.007	007.812	-02.179	-020.149
0037.383	0013.328	00273.32	00179.73	0093.029	007.764	-01.943	-.154
0037.220	0013.226	00273.22	00179.82	0093.051	007.721	-05.065	-.154
0037.207	0013.157	00273.15	00179.89	0093.051	007.751	-03.083	-020.149
0037.097	0013.109	00273.10	00179.96	0093.073	007.849	-04.693	-040.144
0037.009	0013.001	00272.99	00180.09	0093.090	007.874	-04.060	-.154
0036.855	0012.910	0272.909	00180.20	093.109	007.794	-05.865	-.137
0036.877	0012.895	00272.89	00180.20	0093.101	007.678	-02.660	-.154
0036.877	0012.976	00272.97	00180.09	0093.071	007.660	-4.751	-020.171
0036.921	0013.009	00273.00	00180.06	0093.073	007.019	-05.182	-020.127
0036.355	0012.924	00272.92	00180.20	093.123	007.997	-06.220	-.154
0036.812	0012.828	00272.82	00180.29	0093.126	007.037	-02.214	-020.149
0036.812	0012.875	00272.87	00180.20	0093.082	007.648	-03.126	-.170
0036.987	0013.049	00273.04	00180.01	0093.065	007.629	-02.314	-.176
0037.053	0013.091	00273.09	0179.975	0093.065	007.025	-02.161	-020.171
0036.987	0013.027	00273.02	00180.07	0093.101	007.006	-02.292	-.154
0036.921	0012.943	00272.94	00180.17	093.112	007.800	-4.320	-.132
0036.877	0012.981	00272.98	0180.214	0093.115	007.660	-2.405	-.176
0036.877	0012.897	00272.89	00180.21	0093.109	007.667	-4.926	-040.122
0036.921	0012.966	00272.96	00180.10	0093.060	007.713	-01.848	-.176
0036.965	0013.037	00273.03	00180.03	0093.060	007.745	-05.013	-40.144
0037.009	0013.042	00273.04	0180.058	093.071	007.764	-04.846	-.176
0037.009	0013.041	00273.04	0180.038	0093.079	007.745	-04.310	-.154
0037.031	0013.090	0273.090	0179.964	0093.054	007.727	-05.600	-.176
0037.295	0013.311	00273.31	0179.706	0093.016	007.719	-03.748	-020.149
0037.471	0013.466	00273.46	00179.56	[illegible]	007.783	-02.354	[illegible]

&637.559	&Ø13.493	&Ø273.49	&Ø179.53	&Ø93.Ø21	&Ø7.794	-Ø5.449	-.22Ø
&637.559	&Ø13.5Ø1	&Ø273.49	&Ø179.51	&Ø93.Ø13	&Ø7.866	-Ø3.286	-Ø2Ø.193
&637.69Ø	&13.629	&Ø273.62	&Ø179.35	&Ø92.98Ø	&7.715	-Ø2.2Ø1	-Ø2Ø.215
&637.344	&Ø13.779	&Ø273.77	&Ø179.19	&92.969	&Ø7.666	-Ø2.Ø41	-.198
&637.366	&Ø13.814	&Ø273.81	&Ø179.14	&Ø92.961	&Ø7.715	-Ø1.667	-.22Ø
&637.366	&Ø13.817	&Ø273.81	&Ø179.16	&92.974	&Ø7.337	-Ø5.12Ø	-.22Ø
&637.366	&Ø13.796	&Ø273.79	&Ø179.19	&92.985	&Ø7.843	&Ø2.491	-.22Ø
&637.954	&Ø13.851	&Ø273.85	&Ø179.1Ø	&Ø92.958	&Ø7.666	-Ø2.Ø17	-.242
&638.Ø64	&Ø13.948	&Ø273.94	&Ø179.Ø1	&Ø92.961	&Ø7.635	-Ø.914	-.242
&637.954	&Ø13.925	&Ø273.92	&Ø179.Ø6	&Ø92.985	&Ø7.7Ø3	-.Ø57	-.242
&637.91Ø	&13.777	&Ø273.77	&Ø179.21	&Ø92.988	&Ø7.825	&.189	-.22Ø
&637.866	&Ø13.726	&Ø273.72	&Ø179.25	&92.974	&Ø7.825	-Ø1.868	-.22Ø
&637.866	&Ø13.723	&Ø273.72	&Ø179.24	&Ø92.969	&Ø7.715	-Ø3.165	-.22Ø
&637.883	&Ø13.759	&Ø273.75	&Ø179.19	&Ø92.955	&Ø7.642	-Ø2.795	-Ø2Ø.193
&637.932	&Ø13.795	&Ø273.79	&Ø179.16	&Ø92.958	&Ø7.66Ø	-2.267	-.264
&637.888	&Ø13.789	&Ø273.78	&Ø179.18	&Ø92.969	&Ø7.739	-Ø3.Ø15	-.198
&637.756	&Ø13.638	&Ø273.63	&Ø179.36	&Ø93.ØØ5	&Ø7.8ØØ	-4.397	-.198
&637.6Ø3	&Ø13.538	&Ø273.53	&Ø179.47	&Ø93.Ø16	&Ø7.77Ø	-3.268	-.22Ø
&637.581	&Ø13.53Ø	&273.529	&Ø179.48	&Ø93.Ø13	&Ø7.635	-Ø3.938	-.176
&637.646	&Ø13.538	&Ø273.53	&Ø179.46	&Ø92.999	&Ø7.629	-Ø4.898	-.22Ø
&637.581	&Ø13.481	&Ø273.48	&179.561	&Ø93.Ø4Ø	&7.764	-Ø5.6ØØ	-2Ø.193
&637.339	&Ø13.273	&Ø273.27	&Ø179.81	&Ø93.Ø84	&Ø7.874	-Ø1.523	-Ø2Ø.149
&637.229	&Ø13.222	&Ø273.22	&Ø179.86	&Ø93.Ø87	&Ø7.764	-Ø3.143	-Ø4Ø.122
&637.361	&Ø13.354	&Ø273.35	&Ø179.67	&Ø93.Ø32	&Ø7.685	&Ø.7Ø1	-.176
&637.471	&Ø13.47Ø	&273.469	&Ø179.56	&Ø93.Ø35	&Ø7.629	-Ø4.351	-.176
&637.449	&Ø13.422	&Ø273.41	&Ø179.63	&Ø93.Ø51	&Ø7.782	-Ø3.768	-.176
&637.339	&Ø13.282	&Ø273.27	&Ø179.78	&Ø93.Ø62	&Ø7.861	-Ø6.912	-.176
&637.273	&Ø13.241	&Ø273.24	&Ø179.81	&Ø93.Ø54	&Ø7.782	-Ø5.Ø46	-Ø2Ø.193
&637.273	&Ø13.258	&Ø273.25	&Ø179.77	&Ø93.Ø35	&Ø7.654	-Ø3.845	-.176
&637.317	&Ø13.354	&Ø273.35	&Ø179.66	&Ø93.Ø16	&Ø7.623	-Ø6.346	-Ø2Ø.171
&637.339	&Ø13.362	&Ø273.36	&Ø179.65	&Ø93.Ø13	&Ø7.733	-Ø3.768	-.198
&637.361	&Ø13.362	&Ø273.36	&Ø179.65	&Ø93.Ø21	&Ø7.812	-Ø1.9Ø7	-Ø4Ø.166
&637.361	&Ø13.358	&Ø273.35	&Ø179.67	&Ø93.Ø32	&Ø7.697	-Ø5.Ø58	-Ø4Ø.188
&637.339	&Ø13.362	&Ø273.36	&Ø179.65	&Ø93.Ø18	&Ø7.562	-Ø.954	-Ø8Ø.134
&638.Ø2Ø	&14.ØØ6	&Ø274.ØØ	&Ø179.62	&Ø93.634	&Ø7.599	-Ø6.912	-Ø4Ø.122
&636.482	&Ø12.663	&Ø272.66	&Ø179.62	&Ø92.288	&Ø7.721	-Ø1.Ø53	-Ø4Ø.188
&637.ØØ9	&Ø13.1Ø6	&Ø273.1Ø	&Ø179.57	&Ø92.675	&Ø7.745	-Ø1.63Ø	-2Ø.193
&637.229	&Ø13.278	&Ø273.27	&Ø179.44	&Ø92.719	&Ø7.642	-Ø4.668	-Ø2Ø.215
&637.339	&Ø13.37Ø	&273.367	&Ø179.34	&Ø92.7Ø8	&Ø7.568	-Ø1.286	-.198
&637.339	&Ø13.333	&Ø273.33	&Ø179.41	&Ø92.749	&Ø7.648	-Ø5.9Ø3	-.198
&637.Ø97	&Ø13.1ØØ	&273.Ø98	&Ø179.71	&Ø92.81Ø	&7.739	-Ø3.245	-.198
&636.965	&Ø12.994	&Ø272.99	&Ø179.81	&Ø92.812	&Ø7.715	-Ø.743	-.176
&637.ØØ9	&Ø13.Ø58	&Ø273.Ø5	&Ø179.7Ø	&Ø92.758	&Ø7.52Ø	-3.317	-.176
&637.185	&Ø13.223	&Ø273.22	&Ø179.51	&Ø92.733	&Ø7.465	-Ø3.331	-.22Ø
&637.163	&Ø13.192	&Ø273.19	&Ø179.57	&Ø92.763	&Ø7.581	-Ø3.585	-Ø2Ø.215
&636.899	&Ø12.971	&Ø272.96	&Ø179.87	&Ø92.843	&Ø7.745	-Ø4.48Ø	-2Ø.171
&636.746	&Ø12.862	&Ø272.86	&Ø179.97	&Ø92.834	&Ø7.684	-Ø2.246	-.154
&636.855	&Ø12.973	&Ø272.97	&Ø179.79	&Ø92.771	&Ø7.477	-Ø5.434	-.176
&637.Ø53	&Ø13.154	&Ø273.15	&Ø179.6Ø	&Ø92.768	&7.446	-Ø3.157	-Ø2Ø.193
&637.Ø31	&Ø13.ØØ2	&Ø273.ØØ	&179.725	&Ø92.815	&Ø7.721	-Ø4.964	-.176

&635.79Ø	&12.861	&Ø272.85	&Ø18Ø.Ø1	&Ø92.87Ø	&7.855	-Ø2.147	-Ø4Ø.122
&636.724	&Ø12.783	&Ø272.78	&Ø18Ø.Ø5	&Ø92.837	&Ø7.666	-Ø7.39Ø	-.176
&636.833	&Ø12.952	&Ø272.95	&179.8Ø5	&Ø92.755	&Ø7.422	-Ø6.758	-.154
&636.965	&Ø13.Ø55	&Ø273.Ø5	&Ø179.71	&Ø92.771	&Ø7.5Ø1	-Ø6.31Ø	-.198
&636.812	&Ø12.874	&Ø272.87	&Ø179.97	&Ø92.851	&Ø7.8Ø6	-Ø4.997	-.176
&636.526	&Ø12.67Ø	&272.67Ø	&18Ø.195	&Ø92.865	&Ø7.855	-Ø4.731	-.154
&636.482	&Ø12.632	&Ø272.68	&Ø18Ø.13	&Ø92.818	&Ø7.556	-Ø5.368	-Ø2Ø.127
&636.768	&Ø12.888	&Ø272.88	&Ø179.9Ø	&Ø92.788	&Ø7.391	-Ø4.48Ø	-.176
&636.79Ø	&12.895	&Ø272.89	&Ø179.93	&Ø92.829	&Ø7.581	-Ø3.99Ø	-2Ø.171
&636.5Ø4	&Ø12.65Ø	&272.648	&Ø18Ø.24	&Ø92.889	&Ø7.855	-Ø7.Ø17	-Ø2Ø.1Ø5
&636.372	&Ø12.54Ø	&272.538	&Ø18Ø.34	&Ø92.878	&Ø7.782	-Ø2.391	-Ø2Ø.127
&636.5Ø4	&Ø12.684	&Ø272.68	&Ø18Ø.13	&Ø92.815	&Ø7.5Ø1	-Ø4.237	-Ø2Ø.149
&636.658	&Ø12.811	&Ø272.81	&18Ø.ØØ8	&Ø92.818	&Ø7.452	-Ø2.274	-Ø2Ø.127
&636.592	&Ø12.712	&Ø272.71	&Ø18Ø.16	&Ø92.873	&Ø7.66Ø	-4.22Ø	-4Ø.144
&636.46Ø	&12.568	&Ø272.56	&Ø18Ø.32	&Ø92.889	&Ø7.849	-Ø4.918	-Ø2Ø.171
&636.416	&Ø12.545	&Ø272.54	&Ø18Ø.33	&92.873	&Ø7.788	-Ø4.2Ø3	-Ø2Ø.127
&636.5Ø4	&Ø12.642	&Ø272.64	&Ø18Ø.18	&Ø92.829	&Ø7.617	-Ø3.954	-.176
&636.592	&Ø12.748	&Ø272.74	&Ø18Ø.Ø7	&Ø92.821	&Ø7.52Ø	-1.556	-.176
&636.558	&Ø12.789	&Ø272.78	&Ø18Ø.Ø4	&Ø92.829	&Ø7.593	-Ø4.898	-.198
&636.636	&Ø12.78Ø	&272.78Ø	&18Ø.Ø58	&Ø92.837	&Ø7.764	-Ø3.228	-Ø2Ø.149
&636.614	&Ø12.712	&Ø272.71	&Ø18Ø.13	&Ø92.848	&Ø7.812	-Ø3.668	-.154
&636.592	&Ø12.693	&Ø272.69	&Ø18Ø.13	&Ø92.829	&Ø7.666	-Ø1.443	-.176
&636.746	&Ø12.839	&Ø272.83	&Ø179.95	&Ø92.791	&Ø7.483	-Ø2.827	-.176
&636.746	&Ø12.896	&Ø272.89	&Ø179.9Ø	&Ø92.8Ø4	&Ø7.562	-Ø5.123	-.176
&636.658	&Ø12.782	&Ø272.78	&18Ø.Ø71	&Ø92.851	&Ø7.788	-Ø3.571	-.154
&636.57Ø	&12.674	&Ø272.67	&Ø18Ø.18	&Ø92.859	&Ø7.788	-Ø2.7Ø7	-.132
&636.526	&Ø12.666	&Ø272.66	&Ø18Ø.18	&Ø92.854	&Ø7.599	-Ø2.Ø24	-Ø2Ø.171
&636.57Ø	&12.726	&Ø272.72	&Ø18Ø.Ø9	&Ø92.813	&Ø7.526	-Ø5.353	-Ø2Ø.149
&636.636	&Ø12.796	&Ø272.79	&Ø18Ø.Ø2	&Ø92.818	&Ø7.6Ø5	-Ø4.552	-.176
&636.636	&Ø12.797	&Ø272.79	&Ø18Ø.Ø1	&Ø92.81Ø	&7.7Ø3	-Ø3.728	-Ø4Ø.144
&636.636	&Ø12.762	&Ø272.76	&18Ø.Ø77	&Ø92.837	&Ø7.776	-Ø1.298	-Ø2Ø.149
&636.614	&Ø12.731	&Ø272.73	&18Ø.Ø96	&Ø92.826	&Ø7.7Ø3	-Ø2.343	-.154
&636.312	&Ø12.914	&Ø272.91	&Ø179.85	&Ø92.763	&Ø7.587	-Ø1.954	-.198
&637.Ø53	&Ø13.124	&Ø273.12	&Ø179.61	&Ø92.736	&Ø7.562	-Ø4.997	-.22Ø
&637.141	&Ø13.162	&Ø273.16	&Ø179.59	&Ø92.752	&Ø7.69Ø	-4.328	-.198
&637.Ø53	&Ø13.Ø63	&Ø273.Ø6	&Ø179.72	&92.782	&Ø7.8ØØ	-2.137	-.176
&637.Ø39	&Ø13.Ø33	&Ø273.Ø3	&Ø179.73	&Ø92.763	&Ø7.715	-Ø2.695	-.176
&637.141	&Ø13.2Ø4	&Ø273.2Ø	&Ø179.5Ø	&92.7Ø3	&Ø7.55Ø	-6.Ø83	-.198
&637.317	&Ø13.32Ø	&273.318	&Ø179.36	&Ø92.683	&Ø7.55Ø	-6.768	-.242
&637.295	&Ø13.279	&Ø273.27	&Ø179.44	&Ø92.727	&Ø7.745	-Ø6.9Ø1	-Ø2Ø.149
&637.185	&Ø13.137	&Ø273.13	&Ø179.61	&Ø92.749	&Ø7.8ØØ	&2.349	-.198
&637.141	&Ø13.14Ø	&273.139	&Ø179.58	&Ø92.722	&Ø7.678	&Ø2.181	-Ø2Ø.171
&637.273	&Ø13.297	&Ø273.29	&Ø179.37	&Ø92.675	&Ø7.6Ø5	-Ø4.Ø93	-.22Ø
&637.449	&Ø13.397	&Ø273.39	&Ø179.26	&Ø92.664	&Ø7.611	-Ø6.639	-.198
&637.493	&Ø13.428	&Ø273.42	&Ø179.23	&Ø92.667	&Ø7.629	-Ø4.Ø9Ø	-Ø2Ø.237
&637.515	&Ø13.447	&Ø273.44	&Ø179.21	&Ø92.659	&Ø7.669	&9.3Ø4	-Ø2Ø.215
&637.625	&Ø13.5ØØ	&273.499	&Ø179.13	&Ø92.637	&Ø7.684	-.Ø27	-.242
&637.59Ø	&13.597	&Ø273.59	&Ø179.Ø1	&Ø92.6Ø9	&Ø7.654	-Ø3.571	-.242
&637.932	&Ø13.793	&Ø273.79	&178.786	&Ø92.576	&Ø7.599	-Ø5.31Ø	-.242
&638.152	&Ø13.978	&Ø273.97	&Ø178.58	&92.557	&Ø7.56[illegible]	-Ø3.2[illegible]	-.264

8638.240	814.955	80274.05	80178.51	8092.560	807.692	-05.950	[illegible]
8638.240	814.069	80274.06	80178.50	8092.573	807.678	-04.582	-.264
8638.284	8014.078	80274.07	80178.48	8092.560	87.635	-03.322	-.286
8638.437	8014.235	80274.23	80178.30	8092.538	807.574	-05.419	-.286
8638.613	8014.419	80274.41	80178.11	8092.535	807.587	-05.887	-.308
8638.635	8014.485	80274.48	80178.06	8092.549	807.666	-05.878	-.330
8638.579	8014.439	80274.48	80178.06	8092.552	807.690	[illegible]	-.308
8638.657	8014.492	80274.49	80178.05	8092.546	807.654	-05.383	-.352
8638.739	8014.653	80274.65	80177.88	8092.535	807.623	-05.870	-.352
8639.097	8014.931	80274.93	8177.627	8092.557	807.617	-05.189	-.396
8639.272	8015.153	80275.15	80177.44	892.593	807.635	-07.315	-.417
8639.382	8015.217	80275.21	80177.36	8092.579	807.623	-07.372	-.417
8639.360	815.132	80275.13	80177.28	8092.417	807.617	-06.370	-.439
8639.426	8015.223	80275.22	80177.21	8092.439	807.611	-04.859	-.439
8639.426	8015.244	80275.24	80177.21	8092.458	807.623	-03.223	-.396
8639.338	8015.089	80275.08	80177.36	8092.455	807.623	-05.662	-.439
[illegible]	8014.711	80274.71	8177.668	8092.379	807.635	-06.150	-.396
8638.723	8014.423	80274.42	80177.93	8092.354	807.611	-03.263	-.303
8638.525	8014.209	80274.20	80178.14	8092.354	807.623	-01.891	-.242
8638.204	8014.026	80274.02	80178.36	8092.300	87.654	-07.017	-.264
8638.350	814.083	80274.08	80178.48	8092.571	807.629	-06.439	-.264
8638.284	8013.963	80273.96	80178.62	8092.590	87.581	-06.700	-.236
8637.954	8013.689	80273.68	80178.92	8092.617	807.611	-05.593	-.220
8637.559	8013.325	80273.32	80179.36	8092.639	807.694	-4.904	-040.166
8637.141	8013.017	80273.01	80179.74	8092.763	807.678	[illegible]	-.176
8636.877	8012.822	80272.82	80179.97	8092.793	807.695	[illegible]	-020.149
8636.603	812.673	80272.67	80180.15	8092.826	807.593	-05.300	-.176
8636.504	8012.520	8272.519	80180.33	8092.854	807.648	-03.590	-040.144
8636.323	8012.398	80272.39	80180.47	8092.870	87.666	-06.932	-040.122
8636.218	8012.289	80272.28	80180.59	8092.884	807.654	-04.203	-020.149
8636.064	8012.183	80272.18	80180.71	8092.895	807.617	-06.673	-040.144
8635.955	8012.062	80272.06	8180.846	8092.906	807.611	-02.868	-.154
8635.713	8011.895	80271.89	80181.01	8092.909	807.684	-04.066	-020.149
8635.603	8011.770	8271.769	80181.12	8092.895	807.703	-02.926	-.154
8635.559	8011.765	80271.76	80181.11	8092.876	807.617	-05.995	-040.144
8635.603	8011.874	80271.87	80181.00	892.873	807.562	-06.591	-020.127
8635.669	8011.899	80271.89	80181.00	8092.906	807.611	-04.474	-040.100
8635.471	8011.727	80271.72	80181.18	8092.906	807.715	-04.186	-040.122
8635.449	8011.641	80271.64	8181.269	8092.909	807.697	-05.310	-40.122
8635.471	8011.738	80271.73	80181.12	8092.862	807.642	-03.885	-020.149
8635.713	8011.999	80271.99	80180.86	8092.859	807.581	-07.031	-020.105
8635.823	8012.115	80272.11	80180.75	8092.870	87.635	-01.378	-020.105
8635.889	8012.128	80272.12	80180.74	8092.867	807.715	-06.141	-.154
8635.933	8012.177	80272.17	80180.67	8092.854	807.684	-05.773	-.132
8636.174	8012.361	80272.35	80180.47	892.829	807.660	-6.880	-40.166
8636.394	8012.532	80272.53	8180.269	8092.799	807.642	-04.612	-.176
8636.482	8012.601	80272.60	80180.18	8092.788	807.648	-08.815	-060.117
8636.570	812.659	80272.65	80180.11	8092.774	807.648	-04.820	-20.149
8636.724	8012.783	80272.78	80179.95	8092.741	807.660	-5.147	-.154
8636.877	8012.906	80272.90	80179.81	892.716	807.666	-04.693	-020.193
[illegible]	8012.997	80272.99	80179.69	8092.644	807.666	-04.164	-.199

&637.175	&013.080	&273.079	&0179.59	&092.678	&07.690	-0.750	[illegible]
&637.185	&013.163	&0273.16	&0179.48	&092.650	&7.684	-04.744	-040.100
&637.339	&013.281	&0273.27	&0179.34	&092.623	&07.654	-04.763	-020.127
&637.405	&013.316	&0273.31	&0179.20	&092.524	&07.593	-04.131	-020.127
&637.449	&013.352	&0273.35	&0179.15	&092.508	&07.587	-01.490	-40.122
&637.515	&013.352	&0273.35	&0179.16	&92.510	&7.648	-03.313	-040.122
&637.405	&013.307	&0273.30	&0179.22	&092.535	&07.721	-04.872	-.176
&637.427	&013.274	&0273.27	&0179.24	&092.516	&07.678	-04.937	-.154
&637.405	&013.271	&0273.27	&0179.23	&092.508	&07.617	-02.141	-.132
&637.361	&013.231	&0273.23	&179.513	&092.543	&07.642	-01.102	-020.127
&637.119	&013.047	&0273.04	&0179.55	&092.601	&07.666	-01.674	-.132
&636.921	&012.891	&0272.88	&0179.75	&092.642	&07.715	-08.157	-020.127
&636.312	&012.822	&0272.82	&0179.83	&92.650	&7.715	-02.660	-20.105
&635.746	&012.803	&0272.80	&0179.84	&092.642	&07.678	-04.699	-040.078
&636.790	&12.803	&0272.80	&0179.84	&092.642	&07.672	-01.800	-.110
&636.233	&012.859	&0272.85	&0179.84	&092.703	&07.654	-04.570	-20.003
&637.053	&013.076	&0273.07	&0179.87	&092.944	&07.660	-2.281	-020.003
&637.207	&013.216	&0273.21	&0179.87	&093.087	&07.666	-0.737	-020.105
&637.229	&013.250	&273.249	&0179.80	&093.057	&07.660	&.645	-040.078
&637.493	&013.470	&273.469	&0179.55	&093.021	&07.666	-.062	-020.149
&00000.0	&0000.00	&0000.00	&0000.00	&9900.00	&0000.00	&0000.00	-20.149
&00000.0	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	-20.149
&00000.0	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	-20.149
&00000.0	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	-20.149
&00000.0	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	-20.149
&00000.0	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	-20.149
&00000.0	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	-20.149
&00000.0	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	&0000.00	-20.149

Run 3 Leg 4 1/21/66 Printed 6/2/66

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BEARING 1X	BEARING 36X	RELATIVE BEARING	COURSE	TRUE BEARING	SPEED	S/N	DEFL ANGL
&64Ø.591	&Ø8.164	&Ø278.16	&Ø178.76	&Ø96.927	&Ø7.898	&Ø4.Ø84	-Ø358.11
&643.579	&Ø8.181	&Ø288.18	&178.723	&Ø1Ø6.9Ø	&Ø7.819	&Ø2.736	-Ø358.35
&643.557	&Ø8.179	&Ø288.17	&Ø178.73	&Ø1Ø6.9Ø	&Ø7.855	&Ø3.311	-Ø358.37
&643.469	&Ø8.Ø28	&Ø288.Ø2	&Ø179.ØØ	&Ø1Ø7.Ø2	&Ø8.Ø69	&Ø4.Ø17	-Ø358.33
&643.ØØ8	&Ø7.667	&Ø287.66	&Ø179.48	&Ø1Ø7.15	&Ø8.191	&Ø5.37Ø	-358.352
&642.832	&Ø7.459	&Ø287.45	&Ø179.7Ø	&Ø1Ø7.16	&Ø8.Ø38	&Ø7.28Ø	-358.286
&642.92Ø	&7.586	&Ø287.58	&Ø179.45	&Ø1Ø7.Ø3	&Ø7.77Ø	&2.883	-Ø358.3Ø
&643.118	&Ø7.797	&Ø287.79	&Ø179.25	&Ø1Ø7.Ø4	&Ø7.77Ø	&3.7Ø6	-Ø358.35
&642.964	&Ø7.617	&Ø287.61	&Ø179.56	&Ø1Ø7.18	&Ø8.Ø99	&Ø6.976	-Ø358.33
&642.458	&Ø7.2Ø5	&Ø287.2Ø	&Ø18Ø.Ø3	&Ø1Ø7.23	&Ø8.246	&Ø3.693	-Ø358.37
&642.283	&Ø17.Ø78	&Ø287.Ø7	&Ø18Ø.13	&Ø1Ø7.21	&Ø8.Ø26	&Ø2.726	-Ø358.24
&642.59Ø	&17.319	&Ø287.31	&Ø179.78	&1Ø7.Ø97	&Ø7.77Ø	&1.237	-Ø358.33
&642.898	&Ø7.534	&Ø287.53	&Ø179.56	&Ø1Ø7.1Ø	&Ø7.831	&Ø3.419	-Ø358.33
&642.678	&Ø7.452	&Ø287.4Ø	&179.821	&Ø1Ø7.22	&Ø8.13Ø	&3.865	-Ø358.3Ø
&642.261	&Ø7.Ø65	&Ø287.Ø6	&Ø18Ø.17	&Ø1Ø7.24	&Ø8.2Ø3	&Ø5.45Ø	-358.242
&642.195	&Ø17.Ø25	&Ø287.Ø2	&Ø18Ø.15	&Ø1Ø7.18	&7.965	-Ø5.175	-Ø358.26
&642.612	&Ø7.369	&Ø287.36	&Ø179.71	&Ø1Ø7.Ø8	&Ø7.77Ø	-.474	-Ø358.33
&642.832	&Ø7.563	&Ø287.56	&Ø179.53	&Ø1Ø7.1Ø	&7.825	-Ø.891	-Ø358.3Ø
&642.656	&Ø7.4ØØ	&287.4ØØ	&179.821	&Ø1Ø7.22	&Ø8.15Ø	&.914	-Ø358.28
&642.3Ø5	&Ø7.14Ø	&287.139	&Ø18Ø.Ø7	&Ø1Ø7.21	&Ø8.16Ø	-1.543	-Ø358.26
&642.415	&Ø17.197	&Ø287.19	&Ø179.94	&1Ø7.136	&Ø7.9Ø4	-Ø2.182	-Ø358.26
&642.254	&Ø7.5Ø7	&Ø287.5Ø	&Ø179.56	&Ø1Ø7.Ø6	&Ø7.8ØØ	&1.426	-Ø358.41
&642.92Ø	&7.634	&Ø287.63	&Ø179.44	&Ø1Ø7.Ø7	&Ø7.886	&Ø.631	-Ø358.41
&642.92Ø	&7.628	&Ø287.62	&Ø179.48	&Ø1Ø7.1Ø	&Ø8.136	&Ø1.213	-Ø358.44
&642.898	&Ø7.543	&Ø287.54	&Ø179.59	&Ø1Ø7.14	&Ø8.Ø81	&Ø1.495	-Ø358.3Ø
&642.854	&Ø7.513	&Ø287.51	&Ø179.59	&Ø1Ø7.1Ø	&Ø7.928	&Ø1.8ØØ	-358.352
&642.964	&Ø7.681	&Ø287.68	&179.33Ø	&1Ø7.Ø1Ø	&7.867	&Ø1.Ø64	-Ø358.39
&643.184	&Ø7.858	&Ø287.85	&Ø179.14	&Ø1Ø7.ØØ	&Ø7.892	&Ø2.239	-Ø358.46
&643.2Ø6	&Ø7.895	&Ø287.89	&Ø179.12	&Ø1Ø7.Ø1	&Ø7.977	&.483	-Ø358.33
&643.162	&Ø7.872	&Ø287.86	&Ø179.16	&Ø1Ø7.Ø3	&Ø8.Ø38	-.Ø32	-Ø358.41
&643.162	&Ø7.867	&Ø287.86	&Ø179.13	&Ø1Ø7.ØØ	&Ø7.99Ø	-.781	-Ø358.35
&643.295	&Ø7.995	&Ø287.99	&Ø178.95	&Ø1Ø6.94	&Ø7.922	&Ø3.469	-Ø358.39
&643.4Ø3	&Ø8.117	&Ø288.11	&Ø178.81	&Ø1Ø6.92	&Ø7.916	&Ø1.533	-Ø358.37
&643.513	&Ø8.232	&Ø288.23	&Ø178.67	&Ø1Ø6.9Ø	&Ø7.898	&.399	-Ø358.39
&643.447	&Ø8.139	&Ø288.13	&Ø178.59	&Ø1Ø6.73	&Ø7.928	-Ø.865	-Ø358.35
&642.393	&Ø7.184	&Ø287.18	&Ø178.59	&Ø1Ø5.77	&Ø7.9Ø4	&.397	-Ø358.35
&642.371	&Ø7.171	&Ø287.16	&Ø178.62	&Ø1Ø5.79	&7.836	-Ø1.135	-Ø358.33
&642.371	&Ø7.198	&Ø287.19	&Ø178.55	&1Ø5.746	&Ø7.886	-.193	-Ø358.33
&642.437	&Ø7.293	&Ø287.29	&Ø178.45	&Ø1Ø5.74	&Ø7.892	-Ø1.718	-Ø358.33
&642.546	&Ø7.3Ø3	&Ø287.3Ø	&Ø178.45	&Ø1Ø5.75	&Ø7.9Ø4	-Ø4.243	-Ø358.37
&642.453	&Ø7.247	&Ø287.24	&Ø178.51	&Ø1Ø5.76	&Ø7.867	-Ø4.248	-Ø358.39

8641.953	8016.847	80286.84	80178.98	80105.83	807.898	-05.887	-0358.30
8642.107	8016.925	80286.92	80178.87	80105.79	807.886	-04.781	-0358.30
8642.217	8016.975	80286.97	80178.82	80105.80	807.880	-6.141	-0358.33
8642.085	8016.885	80286.88	80178.97	80105.80	807.886	-05.995	-0358.35
8641.975	8016.796	80286.79	80179.07	80105.86	807.874	-02.332	-0358.35
8641.997	8016.794	80286.79	80179.06	80105.85	807.892	8.088	-0358.39
8642.019	8016.831	80286.83	80179.00	80105.83	807.886	-05.757	-0358.30
8642.019	8016.832	80286.83	80179.02	80105.85	807.904	-06.328	-0358.35
8641.975	8016.810	8286.809	80179.03	80105.84	807.831	-05.986	-0358.30
8641.997	8016.886	80286.88	80178.92	80105.81	807.745	-06.383	-0358.28
8641.975	8016.848	80286.84	80179.01	80105.80	807.837	-04.528	-0358.33
8641.733	8016.635	80286.63	80179.28	8105.914	807.971	-06.943	-0358.33
8641.632	8016.537	80286.53	80179.39	8105.927	807.935	-05.267	-0358.26
8641.667	8016.536	80286.53	80179.39	8105.925	807.776	-00.003	-0358.30
8641.689	8016.569	80286.56	80179.32	80105.88	807.733	-07.773	-0358.28
8641.646	8016.539	80286.53	80179.39	80105.93	87.886	-05.623	-0358.33
8641.316	8016.266	80286.26	80179.69	80105.96	88.026	-06.392	-0358.26
8641.206	8016.102	80286.10	8179.846	80105.94	807.965	-02.743	-0358.26
8641.206	8016.111	80286.10	80179.81	8105.919	807.764	-03.585	-0358.28
8641.358	8016.248	80286.24	80179.67	80105.97	807.758	-07.747	-0358.24
8641.294	8016.223	80286.22	80179.73	80105.95	807.886	-05.368	-0358.26
8641.118	8016.042	80286.04	8179.909	80105.94	808.002	-03.605	-0358.26
8641.008	8015.966	80285.96	80179.97	80105.93	807.928	-06.964	-0358.22
8640.986	8015.933	80285.93	8179.995	80105.92	807.831	-01.246	-0358.30
8640.964	8015.923	80285.92	80180.00	8105.922	807.806	-05.031	-0358.17
8641.008	8015.925	80285.92	80180.00	80105.92	807.843	-07.538	-0358.15
8640.964	8015.892	80285.89	80180.03	80105.92	807.935	-04.736	-0358.24
8640.964	8015.873	80285.87	80180.04	80105.91	807.983	-05.224	-0358.22
8640.942	8015.873	80285.87	80180.04	80105.91	807.843	-02.811	-0358.26
8641.050	815.966	80285.96	80179.94	8105.903	807.745	-04.409	-0358.28
8641.404	8016.281	80286.27	80179.85	80106.13	807.837	-03.345	-0358.22
8641.426	8016.366	80286.36	80179.81	80106.18	808.038	-01.484	-0356.50
8641.514	8016.381	80286.38	80179.80	80106.18	808.026	801.736	-0356.33
8641.624	8016.445	80286.44	80179.72	8106.164	807.849	-03.010	-356.265
8641.733	8016.617	80286.61	80179.53	80106.15	807.703	-03.143	-0356.66
8641.799	8016.680	8286.680	8179.492	80106.17	807.892	-03.713	-0356.74
8641.733	8016.533	80286.53	80179.69	80106.22	808.124	-05.267	-0356.68
8641.558	8016.398	80286.39	80179.78	80106.18	808.063	-05.134	-0356.74
8641.733	8016.512	80286.51	8179.629	80106.13	807.764	-03.996	-0356.85
8641.931	8016.675	80286.67	80179.49	80106.17	807.690	-6.021	-0356.79
8641.777	8016.601	80286.60	8179.624	80106.22	807.953	-06.949	-0356.77

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6Ø8.148	-Ø6.514	-Ø356.66
6641.492	6Ø16.356	6Ø286.35	6Ø179.81	6Ø1Ø6.16	6Ø7.947	-Ø5.577	-Ø356.63
6641.146	6Ø16.475	6Ø286.47	6Ø179.68	6Ø1Ø6.15	6Ø7.721	-Ø3.996	-Ø356.7Ø
6641.518	6Ø16.476	6Ø286.47	6Ø179.72	6Ø1Ø6.2Ø	6Ø7.7Ø3	-Ø4.898	-Ø356.63
6641.338	6Ø16.227	6Ø286.22	6Ø179.98	6Ø1Ø6.21	6Ø7.983	-Ø2.Ø92	-Ø356.66
6641.25Ø	616.1Ø5	6Ø286.1Ø	6Ø18Ø.Ø8	6Ø1Ø6.18	6Ø8.112	-Ø5.353	-Ø356.66
6641.272	6Ø16.118	6Ø286.11	6Ø18Ø.Ø5	6Ø1Ø6.17	6Ø7.935	-Ø6.Ø97	-Ø356.63
6641.25Ø	616.2ØØ	6286.199	6Ø179.98	6Ø1Ø6.18	6Ø7.733	-Ø7.648	-Ø356.61
6641.Ø52	6Ø15.953	6Ø285.95	6Ø18Ø.25	6Ø1Ø6.2Ø	6Ø7.788	-Ø4.82Ø	-356.638
664Ø.833	6Ø15.629	6Ø285.62	6Ø18Ø.51	6Ø1Ø6.14	6Ø8.118	-Ø4.564	-Ø356.61
664Ø.745	6Ø15.562	6Ø285.56	6Ø18Ø.55	6Ø1Ø6.12	68.148	-Ø1.182	-Ø356.59
664Ø.723	6Ø15.633	6Ø285.63	6Ø18Ø.47	6Ø1Ø6.1Ø	6Ø7.922	-Ø6.533	-Ø356.57
664Ø.767	6Ø15.784	6Ø275.78	6Ø18Ø.35	6Ø96.139	6Ø7.745	-Ø5.21Ø	-356.572
664Ø.789	6Ø15.779	6Ø285.77	6Ø18Ø.38	6Ø1Ø6.16	6Ø7.812	-Ø4.794	-Ø356.57
664Ø.745	6Ø15.552	6Ø285.55	6Ø18Ø.58	6Ø1Ø6.13	6Ø7.983	-Ø7.169	-Ø356.63
664Ø.591	6Ø15.425	6Ø285.42	6Ø18Ø.67	6Ø1Ø6.Ø9	6Ø8.Ø2Ø	-7.562	-Ø356.61
664Ø.635	6Ø15.398	6Ø285.39	6Ø18Ø.67	6Ø1Ø6.Ø7	6Ø7.928	-Ø4.625	-Ø356.63
664Ø.7Ø1	6Ø15.5Ø5	6Ø285.5Ø	6Ø18Ø.58	6Ø1Ø6.Ø8	6Ø7.751	-Ø4.276	-Ø356.66
664Ø.657	6Ø15.557	6Ø285.55	6Ø18Ø.55	6Ø1Ø6.1Ø	6Ø7.758	-Ø6.337	-Ø356.66
664Ø.481	6Ø15.339	6Ø285.33	6Ø18Ø.75	6Ø1Ø6.Ø9	6Ø7.941	-Ø3.386	-Ø356.59
664Ø.239	6Ø15.Ø54	6Ø285.Ø5	6Ø18Ø.96	6Ø1Ø6.Ø1	6Ø8.Ø32	-Ø7.431	-Ø356.61
664Ø.239	6Ø14.996	6Ø284.99	6Ø18Ø.98	6Ø1Ø5.97	6Ø7.941	-Ø6.985	-Ø356.63
664Ø.393	6Ø15.262	6Ø285.26	618Ø.758	6Ø1Ø6.Ø1	6Ø7.727	-Ø8.356	-Ø356.59
664Ø.547	6Ø15.458	6Ø285.45	6Ø18Ø.62	6Ø1Ø6.Ø8	6Ø7.684	-Ø5.717	-Ø356.59
664Ø.547	6Ø15.357	6Ø285.35	6Ø18Ø.75	6Ø1Ø6.1Ø	6Ø7.898	-Ø7.635	-Ø356.63
664Ø.283	6Ø15.Ø11	6Ø285.Ø1	618Ø.997	6Ø1Ø6.ØØ	6Ø8.Ø32	-Ø5.539	-Ø356.59
664Ø.217	6Ø15.Ø32	6Ø285.Ø2	6Ø18Ø.93	6Ø1Ø5.96	6Ø7.947	-Ø4.612	-Ø356.57
664Ø.591	6Ø15.482	6Ø285.48	618Ø.571	6Ø1Ø6.Ø5	6Ø7.776	-Ø6.533	-Ø356.61
664Ø.811	6Ø15.757	6Ø285.75	6Ø18Ø.37	6Ø1Ø6.12	6Ø7.745	-Ø4.421	-Ø356.66
664Ø.876	6Ø15.796	6Ø285.79	6Ø18Ø.35	6Ø1Ø6.15	6Ø7.843	-Ø5.253	-Ø356.59
664Ø.833	6Ø15.76Ø	6285.76Ø	618Ø.396	6Ø1Ø6.15	6Ø7.935	-Ø5.911	-Ø356.61
664Ø.942	6Ø15.846	6Ø285.84	6Ø18Ø.28	6Ø1Ø6.13	6Ø7.935	-Ø3.Ø31	-Ø356.61
664Ø.986	6Ø15.957	6Ø285.95	6Ø18Ø.2Ø	6Ø1Ø6.16	6Ø7.88Ø	-3.595	-Ø356.61
664Ø.964	6Ø15.976	6Ø275.97	6Ø18Ø.2Ø	6Ø96.177	6Ø7.812	-Ø3.437	-Ø356.59
6641.Ø3Ø	616.ØØ4	6Ø286.ØØ	6Ø18Ø.15	6Ø1Ø6.15	6Ø7.849	-Ø5.631	-Ø356.61
6641.Ø74	6Ø16.Ø61	6Ø286.Ø5	6Ø18Ø.11	6Ø1Ø6.17	6Ø7.898	-Ø5.Ø85	-Ø356.68
6641.Ø96	6Ø16.Ø69	6Ø286.Ø6	6Ø18Ø.11	61Ø6.177	6Ø7.898	-Ø.912	-Ø356.61
6641.162	6Ø16.163	6Ø276.16	6Ø179.96	6Ø96.122	6Ø7.8Ø6	-Ø7.Ø17	-Ø356.66
6641.338	6Ø16.3Ø4	6Ø286.3Ø	6Ø179.85	6Ø1Ø6.15	6Ø7.837	-Ø3.788	-Ø356.68

&641.360	&16.324	&0286.32	&0179.84	&0106.17	&07.922	-04.964	-0356.66
&641.333	&016.325	&0286.32	&0179.84	&0106.17	&07.898	-01.655	-0356.61
&641.404	&016.355	&0286.35	&0179.79	&0106.15	&07.819	-04.271	-0356.63
&641.492	&016.477	&0286.47	&0179.66	&0106.14	&07.812	-05.295	-0356.59
&641.536	&016.535	&0286.53	&0179.61	&0106.15	&07.836	-05.639	-0356.70
&641.667	&016.578	&0286.57	&0179.55	&0106.13	&07.928	-06.176	-0356.63
&641.733	&016.676	&0286.67	&0179.43	&0106.10	&07.836	-04.964	-0356.68
&641.953	&016.816	&0286.81	&0179.25	&0106.07	&07.788	&0.984	-0356.72
&642.063	&016.971	&0286.97	&0179.09	&0106.06	&07.782	-05.397	-0356.72
&642.195	&017.031	&0287.02	&0179.03	&0106.06	&07.892	-04.368	-0356.79
&642.107	&017.029	&0287.02	&0179.03	&106.059	&08.023	-3.668	-0356.77
&642.195	&017.060	&287.059	&0178.97	&0106.03	&07.959	-03.698	-0356.70
&642.437	&07.258	&0287.25	&0178.69	&105.947	&07.770	-4.310	-356.770
&642.766	&07.536	&0287.53	&0178.33	&105.864	&07.727	-06.448	-0356.79
&643.008	&07.692	&0287.69	&0178.18	&0105.87	&07.831	-06.728	-0356.81
&642.964	&07.669	&0287.66	&0178.25	&105.919	&07.990	-.508	-0356.74
&642.942	&07.593	&0287.59	&0178.31	&0105.90	&07.947	-07.396	-0356.77
&643.074	&07.747	&0287.74	&0178.03	&0105.78	&07.764	-03.753	-0356.83
&643.403	&08.034	&0288.03	&0177.70	&0105.73	&07.715	-06.274	-0356.81
&643.535	&08.176	&0288.17	&0177.56	&0105.74	&07.867	-03.091	-0356.81
&643.513	&08.195	&0288.19	&0177.55	&105.743	&08.002	-04.504	-0356.85
&643.557	&08.205	&0288.20	&0177.53	&0105.73	&07.959	-07.350	-356.880
&643.843	&08.435	&0288.43	&0177.24	&0105.68	&07.727	-04.984	-0356.85
&644.260	&8.797	&0288.79	&0176.88	&105.675	&07.660	-5.134	-0356.92
&644.392	&08.973	&0288.97	&0176.72	&0105.69	&07.880	-5.154	-0356.90
&644.370	&8.992	&0288.99	&176.718	&0105.70	&08.014	-06.713	-0356.83
&644.414	&09.039	&0289.03	&0176.65	&0105.69	&07.922	-02.935	-0356.83
&644.788	&09.498	&0289.49	&0176.26	&0105.76	&7.690	-6.467	-0356.85
&645.117	&09.874	&0289.87	&0176.00	&0105.87	&07.623	-03.839	-0356.77
&645.183	&09.961	&0289.95	&0175.95	&0105.91	&07.867	-02.498	-0356.81
&645.293	&010.104	&0290.10	&0175.83	&0105.95	&08.026	-05.303	-0356.81
&645.623	&010.573	&0290.57	&0175.46	&0106.03	&07.861	-05.623	-0356.77
&646.106	&011.106	&0281.10	&0174.99	&096.100	&7.642	-06.301	-0356.79
&646.436	&011.414	&0291.41	&0174.75	&0106.16	&07.642	-06.649	-0356.77
&646.523	&011.470	&291.467	&0174.72	&0106.19	&07.983	-03.819	-0356.68
&646.523	&011.528	&0281.52	&0174.63	&96.158	&08.081	-03.986	-0358.72
&646.941	&011.921	&0291.92	&174.194	&0106.11	&07.337	-05.887	-0356.77
&647.402	&012.272	&0292.27	&0173.79	&0106.07	&7.642	-03.819	-0356.70
&647.556	&012.430	&292.429	&0173.60	&0106.03	&07.690	-6.383	-0356.59
&647.710	&12.515	&0292.51	&0173.49	&0106.01	&07.971	-05.494	-0356.77
&647.842	&012.616	&0292.61	&0173.36	&0105.97	&08.008	-06.698	-0356.68
&647.930	&12.765	&0292.76	&0173.17	&0105.93	&07.855	-05.631	-0356.70
&648.171	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

8648.413	8013.131	80293.09	80172.73	80105.83	807.794	-08.864	-0356.63
8648.457	8013.191	80293.13	80172.64	80105.83	807.886	-07.028	-0356.59
8648.479	8013.203	80293.20	8172.639	80105.83	807.886	-01.680	-356.638
8648.435	8013.166	80293.16	80172.69	80105.85	807.819	-03.139	-0356.61
8648.479	8013.162	80293.16	80172.67	80105.83	807.819	-03.109	-0356.72
8648.633	8013.310	8293.307	80172.48	80105.79	807.819	-03.010	-356.748
8648.677	8013.369	80293.36	80172.43	80105.80	807.831	-03.938	-0356.52
8648.655	8013.370	8293.368	80172.44	80105.81	807.843	-04.775	-0356.59
8648.677	8013.321	80293.31	80172.50	80105.82	807.861	-05.781	-0356.68
8648.589	8013.300	8293.299	80172.51	80105.81	807.825	-05.494	-0356.70
8648.655	8013.349	80293.34	80172.43	80105.78	807.812	-04.181	-0356.68
8648.984	8013.546	80293.54	80172.22	80105.76	807.812	-05.765	-0356.72
8648.962	8013.604	80293.60	80172.18	80105.78	807.861	-03.964	-0356.70
8648.743	8013.369	80293.36	80172.47	80105.83	807.922	-06.974	-0356.68
8648.567	8013.235	80293.23	80172.61	80105.85	87.788	-05.945	-0356.63
8648.545	8013.220	8293.220	8172.617	80105.83	807.642	-07.419	-0356.70
8648.391	8013.098	80293.09	80172.84	8105.936	807.733	-07.337	-0356.63
8647.754	8012.578	80292.57	80173.59	80106.17	807.971	-05.577	-0356.72
8647.183	8012.013	80292.01	80174.28	80106.29	807.910	-7.722	-0356.74
8646.897	8011.655	80291.65	80174.65	80106.30	807.690	-3.970	-356.792
8646.655	8011.241	80291.23	80175.08	80106.32	87.678	-07.281	-0356.83
8645.320	810.340	8290.338	80175.81	80106.15	87.745	-08.130	-356.814
8644.963	809.252	80289.25	80176.65	80105.90	807.806	-04.668	-0356.88
8644.238	808.510	8288.509	80177.38	80105.89	807.794	-03.798	-0356.83
8643.535	807.960	8287.960	8177.995	80105.95	807.794	-03.881	-0356.79
8643.008	807.477	80287.47	80178.55	80106.03	807.794	-07.514	-0356.74
8642.437	807.029	80287.02	80179.14	80106.17	807.819	-05.623	-0356.77
8641.777	8016.435	80286.43	80179.81	80106.24	807.806	-08.881	-0356.63
8641.052	8015.735	80285.73	80180.46	80106.19	807.764	-03.829	-0356.61
8640.371	8015.200	8285.200	8180.865	80106.06	807.751	-03.980	-356.572
8640.173	8014.925	80284.92	80131.06	80105.99	807.770	-6.429	-0356.63
8639.822	8014.647	80284.64	80181.29	80105.93	807.782	-05.639	-0356.63
8639.602	8014.265	80284.26	80181.61	80105.83	807.770	-11.411	-0356.66
8639.229	8013.922	80283.92	8181.928	80105.84	807.739	-05.383	-0356.70
8638.987	8013.699	80283.69	80182.13	80105.83	807.776	-06.649	-0356.68
8638.745	8013.497	80283.49	80132.34	80105.83	807.776	-07.389	-0356.66
8638.547	8013.337	80283.33	80182.49	80105.83	807.739	-04.071	-0356.66
8638.437	8013.292	80283.29	80182.54	80105.83	807.672	-05.757	-0356.66
8638.459	8013.289	80283.28	80182.55	80105.83	807.690	-6.758	-0356.68
8638.306	8013.134	80283.13	80182.76	80105.90	807.788	-06.046	-0356.70
8638.020	812.883	80282.88	80183.08	80105.96	807.776	-08.293	-0356.68
8637.888	8012.836	80282.83	80183.09	80105.93	87.654	-04.120	-356.660
8638.042	8013.043	80273.04	8182.840	895.880	87.599	-05.733	-0356.66
8638.262	8013.138	80233.13	80182.78	80105.92	807.776	-06.912	-0356.74
8638.218	8013.078	80283.07	80182.85	80105.93	807.855	-05.368	-0356.63
8633.174	8013.063	80283.08	80182.82	80105.90	807.739	-04.164	-0356.68
8638.481	8013.353	80283.35	80182.50	80105.85	807.648	-02.186	-0356.72
8638.701	8013.579	80283.57	80182.23	80105.81	807.678	-05.846	-0356.66
8638.943	8013.787	80283.78	80181.98	80105.77	807.819	-05.004	-0356.66
8639.185	8014.026	80284.02	80181.73	80105.76	807.800	-3.442	-0356.63
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	+014.732	+0284.73	+181.112	+0105.84	+07.666	-08.214	-0356.59
+640.035	+015.028	+0285.02	+0180.91	+0105.94	+07.727	-02.660	-356.616
+640.261	+015.263	+0275.26	+0180.74	+096.004	+07.794	-05.895	-0356.68
+640.591	+015.613	+0275.61	+0180.43	+096.051	+07.794	-02.747	-0356.61
+640.964	+015.967	+0275.96	+0180.13	+096.100	+7.800	-4.619	-0356.66
+641.096	+016.169	+0276.16	+0179.95	+096.119	+07.709	-06.542	-0356.59
+641.272	+016.334	+0276.33	+0179.79	+096.128	+07.721	-07.202	-0356.59
+641.404	+016.517	+0276.51	+0179.60	+096.119	+07.794	-04.944	-0356.04
+641.689	+016.658	+0286.65	+0179.45	+0106.11	+07.874	-04.504	-0355.82
+641.755	+016.772	+0276.77	+179.316	+096.086	+07.831	-03.527	-0355.75
+641.953	+016.945	+0286.94	+0179.08	+105.024	+07.733	-0.631	-0357.23
+642.217	+017.162	+0287.16	+0178.84	+0106.00	+07.703	-05.161	-0358.13
+642.327	+07.231	+0287.22	+0178.79	+0106.02	+07.721	-07.169	-0358.13
+642.283	+07.180	+287.180	+178.910	+106.089	+07.825	-02.621	-0357.34
+642.195	+017.118	+0287.11	+0178.99	+0106.11	+07.831	-06.985	-0357.29
+642.305	+07.228	+0287.22	+0178.86	+106.087	+07.758	-04.977	-0357.29
+642.634	+07.472	+0287.47	+0178.53	+0106.00	+07.648	-05.203	-0357.38
+642.832	+07.629	+0287.62	+0178.37	+0106.00	+07.660	-6.220	-357.385
+642.852	+07.668	+0287.66	+0178.36	+0106.03	+07.819	-04.209	-0357.36
+642.783	+07.573	+0287.57	+0178.50	+0106.07	+07.892	-04.159	-0357.31
+642.722	+07.528	+0287.52	+0178.48	+0106.01	+7.764	-06.738	-0357.38
+642.964	+07.744	+0287.74	+0178.17	+0105.91	+07.617	-07.685	-0357.38
+643.118	+07.882	+0287.88	+178.014	+0105.89	+07.666	-04.391	+0357.42
+643.206	+07.931	+0287.93	+178.000	+105.930	+7.812	-06.229	-0357.42
+643.162	+07.373	+0287.87	+0178.14	+0106.01	+07.837	-06.514	-0357.38
+643.000	+07.697	+0287.69	+0178.32	+0106.01	+07.782	-06.476	-0356.68
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+642.964	+07.657	+0287.65	+0178.31	+0105.96	+07.703	-05.281	-0356.26
+642.942	+07.686	+0287.68	+0178.32	+0106.01	+7.812	-05.945	-0356.22
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+640.547	+015.459	+0285.45	+0179.53	+0105.04	+07.849	-05.895	-0356.15
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+638.679	+013.549	+0283.54	+0179.41	+0102.96	+07.733	-05.168	-0356.04
+637.557	+012.638	+0272.63	+0179.39	+092.035	+07.928	-05.113	-0356.04
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+637.229	+012.456	+0272.45	+0179.50	+091.961	+07.794	-05.449	-0356.00
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+637.273	+012.453	+0272.45	+0179.50	+091.956	+07.831	-07.408	-0356.02
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+637.251	+012.443	+0272.44	+0179.48	[illegible]	+07.678	[illegible]	-0356.04

6637.105	6012.303	60272.36	60179.61	6091.975	607.702	-07.454	-0355.97
6636.943	6012.140	60272.14	60179.86	6092.014	67.965	-04.716	-0356.00
6636.937	6012.046	60272.00	60180.01	6092.024	607.996	-03.060	-355.979
6636.724	6011.923	60271.92	60180.11	692.032	607.880	-6.420	-355.979
6636.702	6011. 36	60271.88	60180.12	6092.013	67.709	-04.409	-0356.00
6636.702	6011.970	6271.969	60180.02	6091.994	607.060	-7.338	-0356.00
6636.833	6012.045	60272.04	60179.98	6092.032	607.782	-03.281	-0356.02
6636.658	6011.820	6271.810	60180.30	6092.120	67.990	-8.742	-0355.97
6636.350	611.577	60271.57	60180.54	6092.123	607.990	-5.353	-0356.00
6636.482	6011.727	60271.72	60180.34	6092.071	607.703	-05.524	-0356.00
6636.943	6012.165	60272.16	60179.88	6092.049	607.320	-7.635	-0356.00
6637.053	6012.230	6272.230	6179.863	6092.093	607.783	-03.996	-0356.00
6636.680	611.874	60271.87	60180.31	6092.192	600.026	-07.466	-0355.97
6636.433	6011.701	60271.70	6180.445	6092.145	607.965	-05.623	-0356.00
6636.680	612.010	6272.008	60180.07	6092.085	607.697	-05.375	-0355.97
6637.119	6012.240	6272.238	60179.81	6092.092	607.694	-07.685	-0356.00
6637.185	6012.198	60272.19	60179.90	6092.098	607.031	-02.427	-0356.02
6636.943	6012.045	60272.04	60180.04	6092.005	607.916	-09.733	-0356.04
6637.009	6012.175	60272.17	60179.83	6092.010	67.031	-06.240	-0356.00
6637.339	6012.421	60272.42	6179.556	691.969	607.727	-07.538	-0356.11
6637.295	6012.398	60272.39	60179.55	691.047	607.733	-09.822	-0356.04
6637.119	6012.239	60272.23	60179.73	6091.969	607.794	-04.299	-0356.02
6636.702	6011.950	6271.950	6179.761	6091.711	607.812	-07.478	-0356.06
6636.768	6012.015	60272.01	60179.69	6091.670	67.702	-07.930	-0356.04
6636.877	6012.098	60272.09	60179.57	6091.673	607.776	-09.757	-0356.04
6636.077	6012.009	60272.00	60179.99	6091.606	607.702	-07.281	-0356.20
6636.333	6012.014	60272.01	60179.75	6091.771	607.794	-09.693	-0356.04
6639.009	6013.990	6283.900	60179.75	60103.78	67.702	-07.747	-0356.06
6638.701	6013.555	60283.55	60179.57	60103.12	607.721	-09.532	-0356.02
6638.987	6013.794	60283.79	60179.47	60103.26	607.751	-09.978	-0356.00
6638.767	6013.569	60283.56	60179.69	6103.253	607.037	-07.994	-0356.02
6638.591	6013.407	60283.40	60179.84	60103.24	607.704	-04.690	-356.001
6638.635	6013.433	60283.43	60179.83	60103.25	607.664	-07.530	-0356.02
6638.833	6013.647	60283.64	60179.63	60103.25	67.709	-05.427	-0356.02
6638.899	6013.715	60283.71	60179.55	6103.263	607.019	-07.060	-356.005
6638.745	6013.508	60283.50	60179.76	60103.20	607.829	-06.939	-0356.04
6638.481	6013.297	60283.29	60179.97	60103.27	607.776	-05.606	-355.979
6638.441	6013.322	60283.32	60179.94	60103.20	607.759	-05.701	-0356.02
6638.701	6013.549	60283.54	60179.71	60103.20	607.735	-06.240	-0356.04
6638.767	6013.622	60283.62	6179.699	60103.20	67.036	-04.339	-0356.02
6638.613	6013.463	60283.46	60179.79	60103.20	67.043	-05.773	-0356.02
6638.573	6013.354	60283.35	60179.90	60103.29	607.702	-07.900	-0356.00
6638.481	6013.375	60283.37	60179.07	60103.24	607.703	-07.610	-356.025
6638.725	6013.589	60283.58	60179.66	60103.35	607.727	-06.340	-0356.04
6638.789	6013.703	60283.70	60179.55	60103.26	67.704	-04.813	-0356.04
6638.833	6013.715	60283.71	60179.59	6103.265	607.702	-03.819	-0356.02
6638.767	6013.716	60283.71	60179.59	60103.26	607.751	-02.274	-0356.00
6638.811	6013.712	60283.71	60179.55	103.260	67.004	-09.441	-0356.00
6638.855	6013.747	60283.74	60179.91	60103.26	607.799	-05.051	-0356.04
6638.745	6013.643	60283.64	60179.61	60103.25	607.825	-07.500	-0356.02
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6638.657	6013.519	60283.51	60179.71	60103.23	67.660	-6.012	-0356.02
6638.745	6013.666	60283.66	60179.60	60103.26	607.642	-06.710	-0356.04
6638.745	6013.594	60283.59	60179.66	60103.25	607.749	-07.697	-0356.00
6638.613	6013.478	60283.47	60179.70	60103.23	607.776	-07.506	-0356.00
6638.525	6013.421	60283.42	6179.821	60103.24	607.776	-06.780	-0355.97
6638.503	6013.395	60283.39	60179.84	60103.23	607.721	-06.430	-355.957
6638.481	6013.395	60283.39	60179.84	60103.23	607.719	-05.554	-0355.95
6638.416	6013.345	60283.34	60179.92	6103.263	607.733	-05.693	-0355.97
6638.350	613.270	6283.269	60180.03	6103.269	607.764	-07.011	-0356.00
6638.328	6013.260	6283.260	6180.003	60103.26	607.745	-06.708	-0355.95
6638.372	6013.359	60283.35	60179.92	60103.28	607.739	-06.768	-0356.00
6638.328	6013.392	60273.38	60179.90	6093.293	607.745	-05.717	-0356.00
6638.306	6013.295	60283.29	60179.97	60103.26	607.758	-06.080	-355.957
6638.394	6013.391	60283.39	6179.869	60103.29	607.703	-07.974	-0356.00
6638.701	6013.649	60283.64	60179.60	60103.29	607.629	-04.061	-0356.02
6638.767	6013.702	60283.70	6179.574	60103.27	607.715	-05.303	-0356.04
6638.613	6013.477	60283.47	60179.78	6103.259	607.018	-04.946	-0355.97
6638.401	6013.369	60283.36	60179.07	60103.24	607.704	-05.631	-0356.00
6638.591	6013.546	60283.54	60179.69	60103.24	607.654	-05.331	-0355.97
6638.855	6013.725	60283.72	60179.53	60103.25	607.640	6000000.0	-356.023
6638.833	6013.698	60283.69	60179.56	60103.26	607.751	-04.362	-0356.04
6638.635	6013.447	60283.44	60179.81	6103.258	607.806	-07.103	-0356.00
6638.459	6013.353	60283.35	60179.89	60103.24	607.727	-07.928	-0356.04
6638.569	6013.487	60283.48	60179.76	60103.25	67.635	-03.107	-0356.02
6638.701	6013.594	60283.59	60179.67	60103.26	607.604	-02.431	-0356.00
6638.547	6013.437	60283.43	60179.82	60103.26	67.025	-01.196	-0355.95
6638.459	6013.348	60283.34	60179.90	60103.29	67.739	-05.134	-0355.93
6638.591	6013.518	60283.51	60179.73	60103.24	607.581	-04.833	-0355.95
6638.767	6013.627	60283.62	60179.63	60103.26	607.605	-03.096	-0355.95
6638.503	6013.362	60283.35	60179.92	60103.28	607.861	-01.743	-0355.93
6638.262	6013.163	60283.16	60180.13	60103.29	607.904	-06.149	-0355.97
6638.328	6013.269	60283.26	60180.01	60103.28	607.698	-1.227	-0355.95
6638.613	6013.497	60283.49	60179.79	60103.28	607.532	-05.606	-0355.97
6638.635	6013.532	60283.53	6179.761	60103.29	607.617	-06.049	-0355.9[illegible]
6638.525	6013.417	60283.41	60179.87	60103.28	607.819	-06.420	-355.957
6638.416	6013.280	6283.280	6180.005	60103.28	607.861	-07.006	-0356.00
6638.323	6013.226	60283.22	60180.05	60103.27	607.703	601.238	-0355.97
6638.372	6013.306	60283.30	60179.97	6103.274	607.574	-01.907	-0355.97
6638.547	6013.454	60283.45	60179.83	60103.29	607.642	-02.603	-0355.95
6638.503	6013.396	60283.39	60179.90	60103.29	607.837	-03.461	-0355.97
6638.350	613.237	60283.23	60180.04	60103.28	607.031	-07.586	-0355.95
6638.328	6013.226	60283.22	60180.04	60103.27	607.672	-04.391	-0355.93
6638.481	6013.417	60283.41	60179.87	60103.20	607.635	60.840	-355.970
6638.613	6013.515	60283.51	60179.76	60103.28	607.698	62.830	-356.023
6638.635	6013.532	60283.53	6179.755	60103.20	607.751	-04.710	-0355.97
6638.591	6013.532	60283.53	6179.753	60103.28	607.737	-03.763	-0355.97
6638.591	6013.533	60283.53	60179.75	60103.20	607.672	-04.345	-0356.00
6638.591	6013.514	60283.51	60179.75	60103.26	607.604	-05.501	-0355.97
6638.503	6013.419	60283.41	60179.75	60103.17	67.745	-04.115	-0356.00
6638.635	6013.537	60283.53	60179.61	60103.15	607.751	-06.905	-0356.02

6638.767	6013.659	60283.65	60179.48	60103.14	607.666	-07.863	-0355.97
6638.811	6013.672	60283.67	60179.47	6103.142	607.640	601.691	-0355.97
6638.811	6013.672	60283.67	6179.486	60103.15	607.660	69.200	-356.001
6638.811	6013.674	60283.67	60179.47	60103.14	607.721	-07.202	-0356.00
6638.833	6013.697	60283.69	60179.45	60103.14	607.764	-03.943	-0356.04
6638.657	6013.467	60283.46	60179.67	6103.137	607.758	-03.130	-355.957
6638.503	6013.365	60283.36	60179.76	60103.13	607.678	-06.097	-0356.02
6638.591	6013.461	60283.45	60179.66	60103.12	607.599	-06.439	-0355.97
6638.701	6013.603	60283.60	60179.54	60103.14	607.666	-05.693	-0355.97
6638.481	6013.378	60283.37	60179.79	60103.17	607.794	-05.479	-0355.93
6638.036	6013.014	60283.01	60180.23	60103.24	607.819	-05.134	-0356.02
6637.888	6012.370	6282.870	6180.382	60103.25	607.690	-3.099	-0355.93
6637.888	6012.875	60282.87	60180.36	6103.233	607.654	-07.125	-0355.97
6637.952	6012.909	60282.90	60180.32	60103.23	607.697	-08.430	-355.979
6637.734	6012.731	60282.73	6180.557	60103.20	607.764	-00.130	-355.935
6637.449	6012.568	60272.56	60180.73	6093.331	607.733	-0[illegible].587	-0355.93
6637.361	6012.491	60272.48	60180.80	6093.296	607.648	-06.943	-0355.93
6637.383	6012.446	60272.44	60180.06	6093.310	67.660	-[illegible].774	-0356.00
6637.163	6012.322	60272.32	60181.00	6093.323	607.806	-06.974	-0355.95
6637.075	6012.253	60272.25	60181.05	6093.307	607.782	-00.474	-0355.91
6637.141	6012.395	60272.39	60180.87	6093.274	607.568	-03.091	-0355.93
6637.339	6012.518	60272.51	60180.76	6093.279	607.568	-05.217	-0355.97
6637.317	6012.505	60272.50	60180.79	6093.304	607.776	-01.329	-0355.93
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935
600000.0	60000.00	60000.00	60000.00	60000.00	60000.00	60000.00	-355.935

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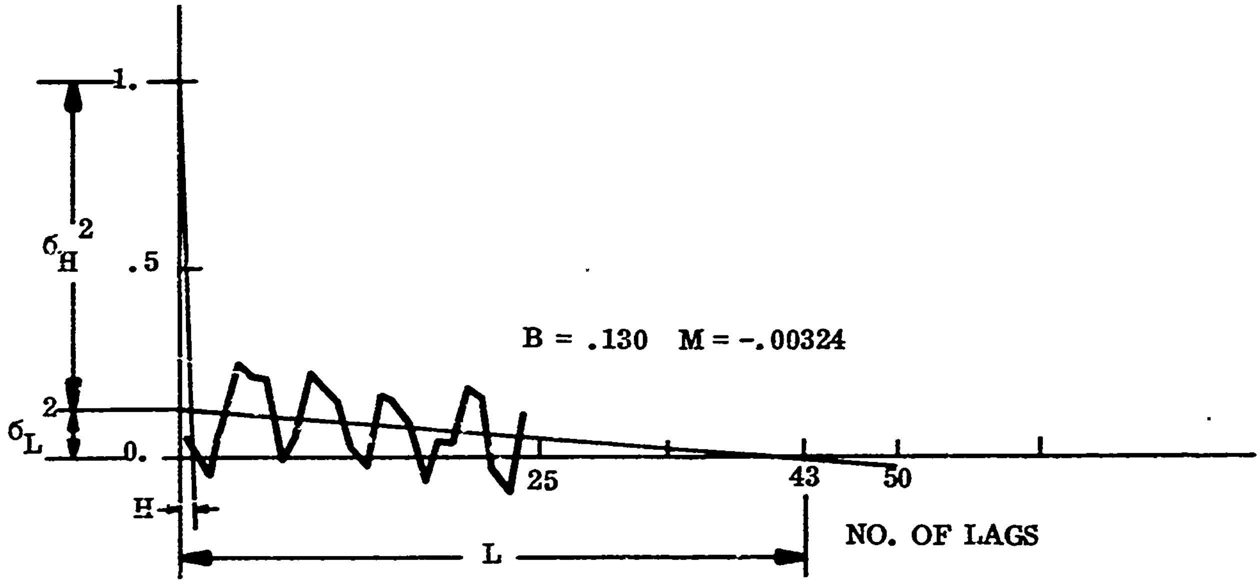
APPENDIX B

COMPLETE AUTOCORRELATION RESULTS

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME
(EACH LAG = 2.5 SEC)



$\sigma_L^2 = 13\% = 0.60$ $\qquad \sigma_L = 0.774$

$\sigma_H^2 = 87\% = 3.98$ $\qquad \sigma_H = 1.95$

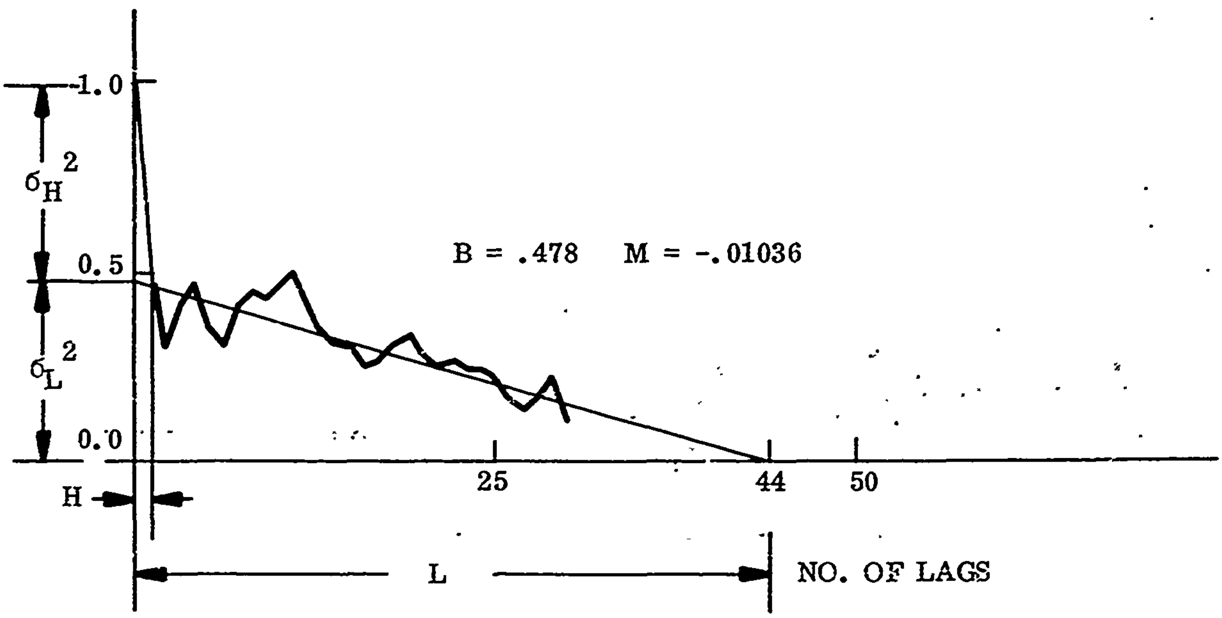
$\sigma_T^2 = 4.58$ = VARIANCE $\qquad \sigma_T = 2.14$

L = 107 SEC $\qquad \overline{S/N} = -4.47$

H = 2.5 SEC

RUN 2 LEG 1 SIGNAL-TO-NOISE
5,000 YARDS
DATA BASED ON 247 SELECTED FRAMES
(617 SECONDS), 10% LAG

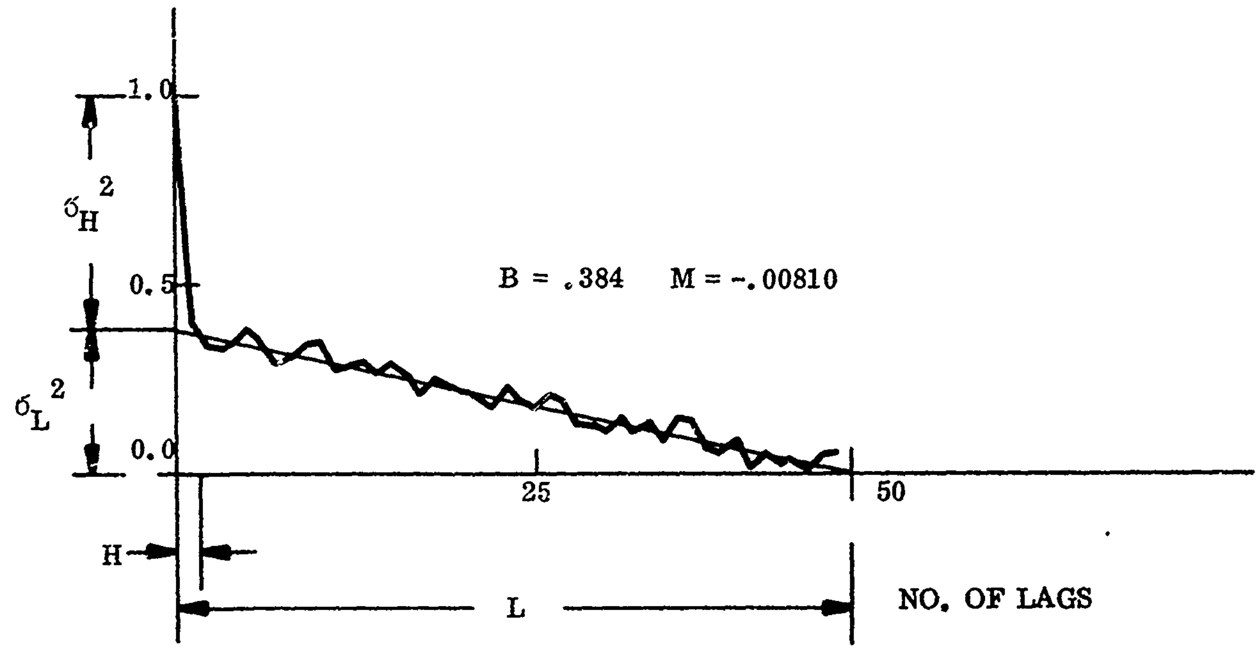
SIMPLIFIED AUTOCORRELATION RESULTS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 48% = 0.413	σ_L = 0.642
σ_H^2 = 52% = 0.449	σ_H = 0.668
σ_T^2 = 0.86 = VARIANCE	σ_T = 0.926
L = 111 SEC	$\overline{S/N}$ = -5.47
H = 3.75 SEC	

RUN 2 LEG 2 SIGNAL-TO-NOISE
10,000 YARDS
DATA BASED ON 308 FRAMES
(ENTIRE RUN) OR 770 SECONDS WITH 10% LAG

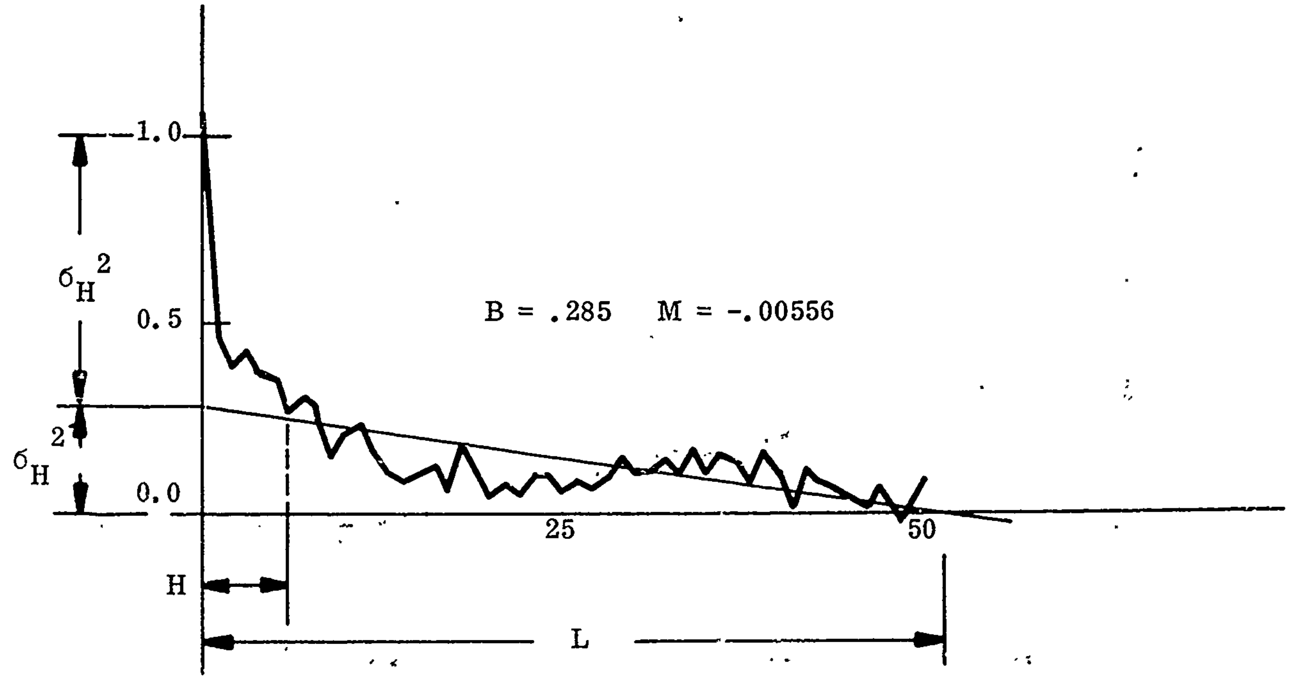
SIMPLIFIED AUTOCORRELATION RESULTS
NORMALIZED VARIANCE VS. TIME



$\sigma_L^2 = 38\% = 1.77$	$\sigma_L = 1.33$
$\sigma_H^2 = 62\% = 2.89$	$\sigma_H = 1.70$
$\sigma_T^2 = 4.66$ = VARIANCE	$\sigma_T = 2.16$
L = 117.5 SEC	S/N = -7.83
H = 3.75 SEC	

RUN 2 LEG 3 SIGNAL-TO-NOISE
20,000 YARDS
DATA BASED ON 467 FRAMES
(ENTIRE RUN) OR 1170 SECONDS WITH 10% LAG

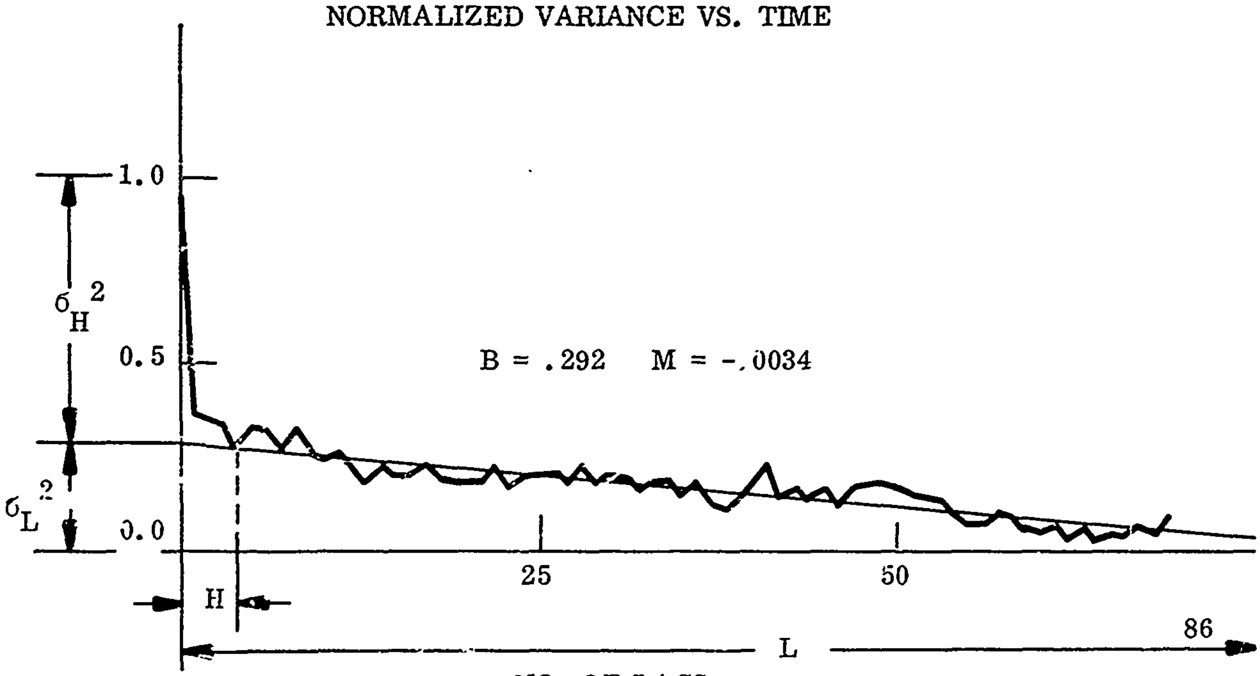
SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2	= 28.5% = .077	σ_L	= .277
σ_H^2	= 71.5% = .193	σ_H	= .439
σ_T^2	= 0.27 = VARIANCE	σ_T	= .509
L	= 127 SEC	$\overline{S/N}$	= -5.33
H	= 15 SEC		

RUN 2 LEG 4 SIGNAL-TO-NOISE
40,000 YARDS
DATA BASED ON 505 FRAMES
(ENTIRE RUN) - 1260 SECONDS, 10% LAG

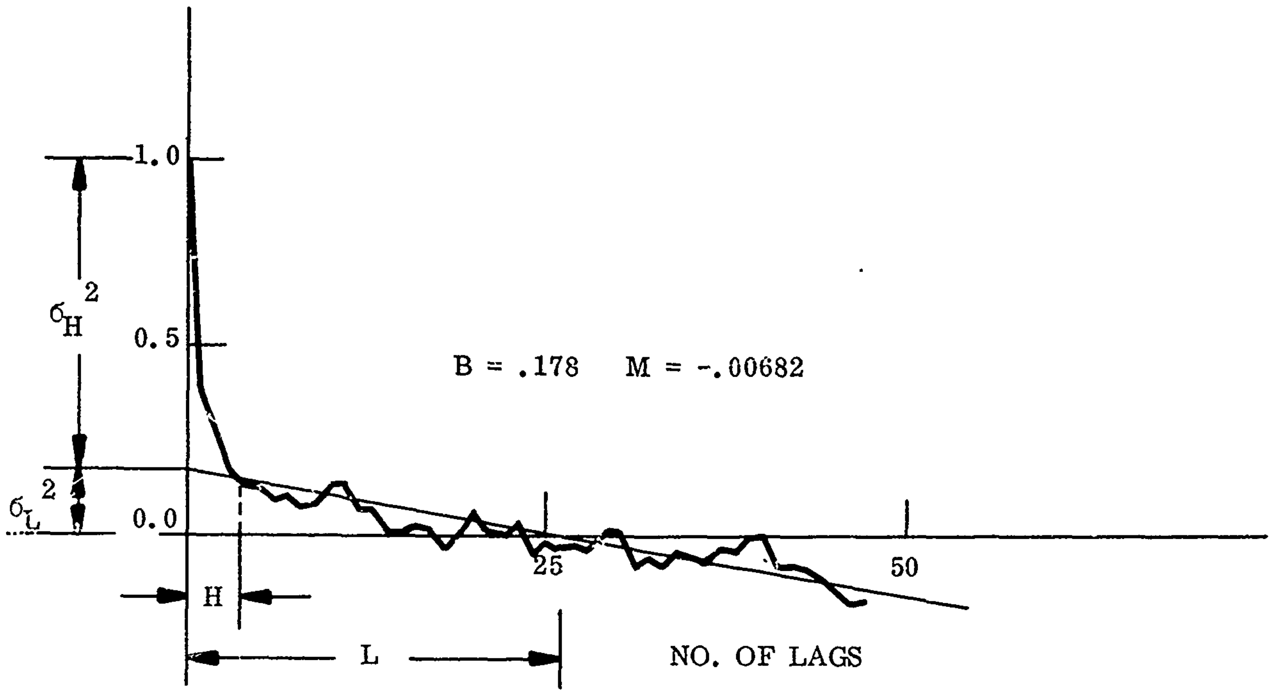
SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 29% = .246	σ_L = .496
σ_H^2 = 71% = .604	σ_H = .776
σ_T^2 = 0.85 = VARIANCE	σ_T = .921
L = 215 SEC	$\overline{S/N}$ = -6.36
H = 10 SEC	

RUN 2 CLOSING SIGNAL-TO-NOISE
DATA BASED ON FIRST 693 FRAMES
(1730 SECONDS), 10% LAG

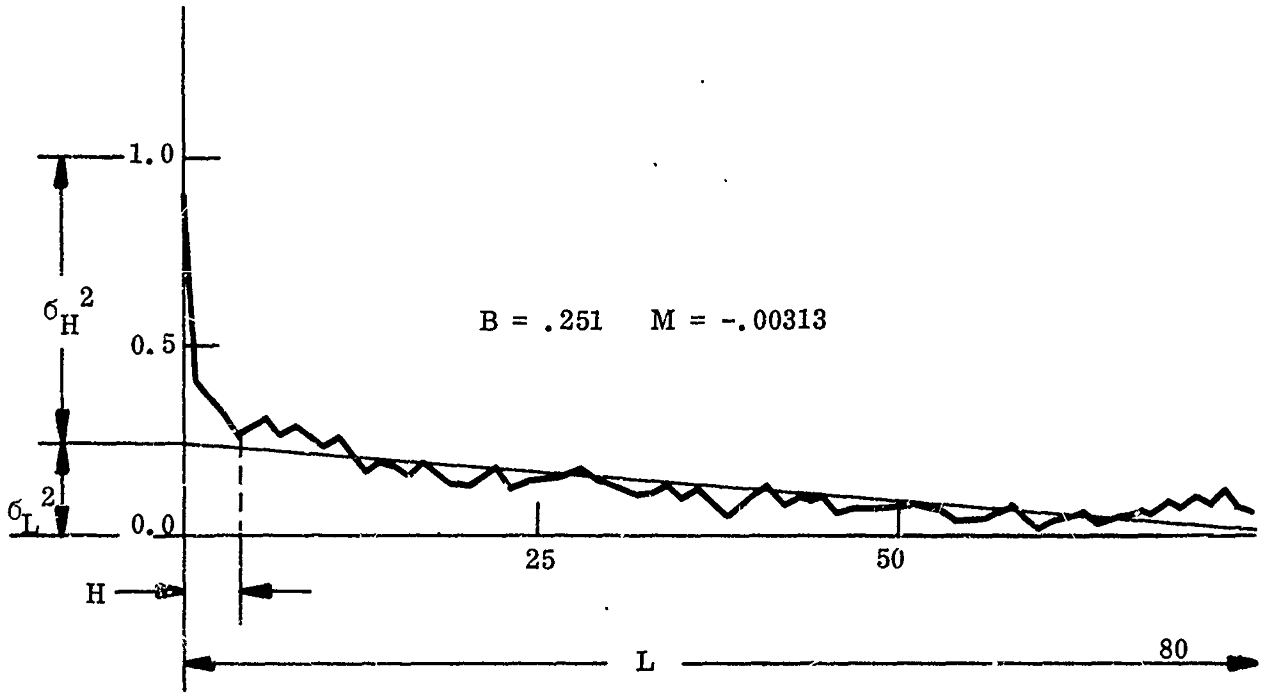
SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2	= 18% = 0.402	σ_L	= 0.634
σ_H^2	= 82% = 1.830	σ_H	= 1.352
σ_T^2	= 2.23 = VARIANCE	σ_T	= 1.493
L	= 65 SEC	$\overline{S/N}$	= -7.80
H	= 9.4 SEC		

RUN 2 CLOSING SIGNAL-TO-NOISE
DATA BASED ON 476 FRAMES
(693-1169) - 1190 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



$\sigma_L{}^2$ = 25% = 2.48 $\qquad$ σ_L = .498

$\sigma_H{}^2$ = 75% = .742 $\qquad$ σ_H = .861

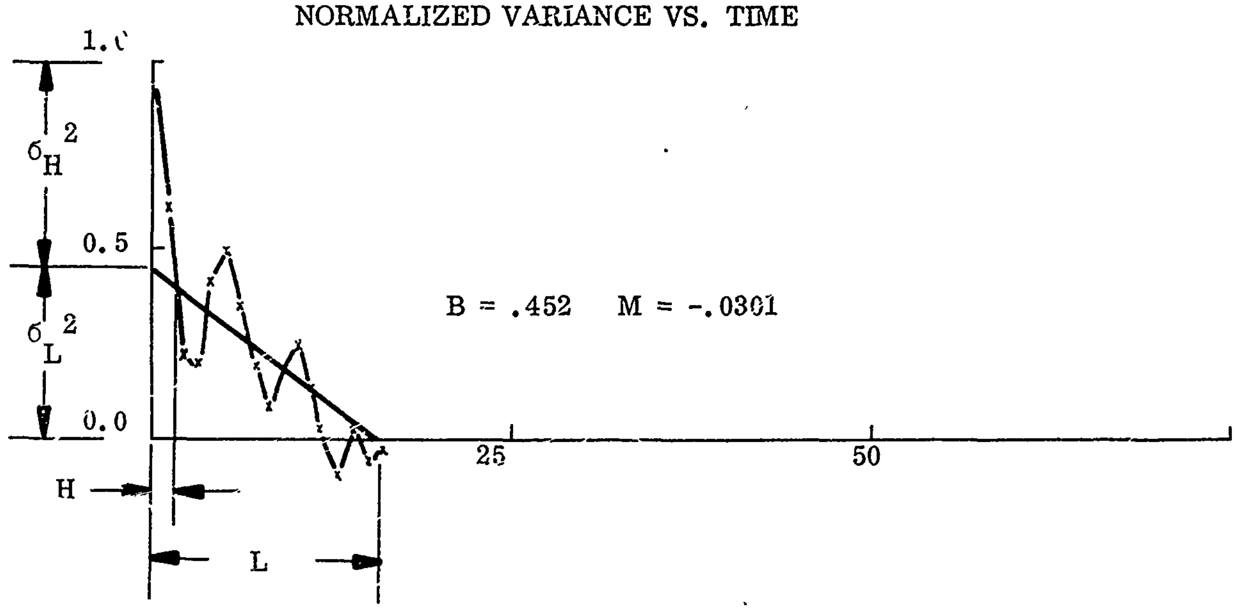
$\sigma_T{}^2$ = 0.99 = VARIANCE $\qquad$ σ_T = .995

L = 200 SEC $\qquad$ S/N = -6.30

H = 10 SEC

RUN 2 CLOSING SIGNAL-TO-NOISE
DATA BASED ON 792 FRAMES
(0-792) 1980 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION RESULTS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 46% = 1.69 σ_L = 1.30

σ_H^2 = 54% = 1.99 σ_H = 1.41

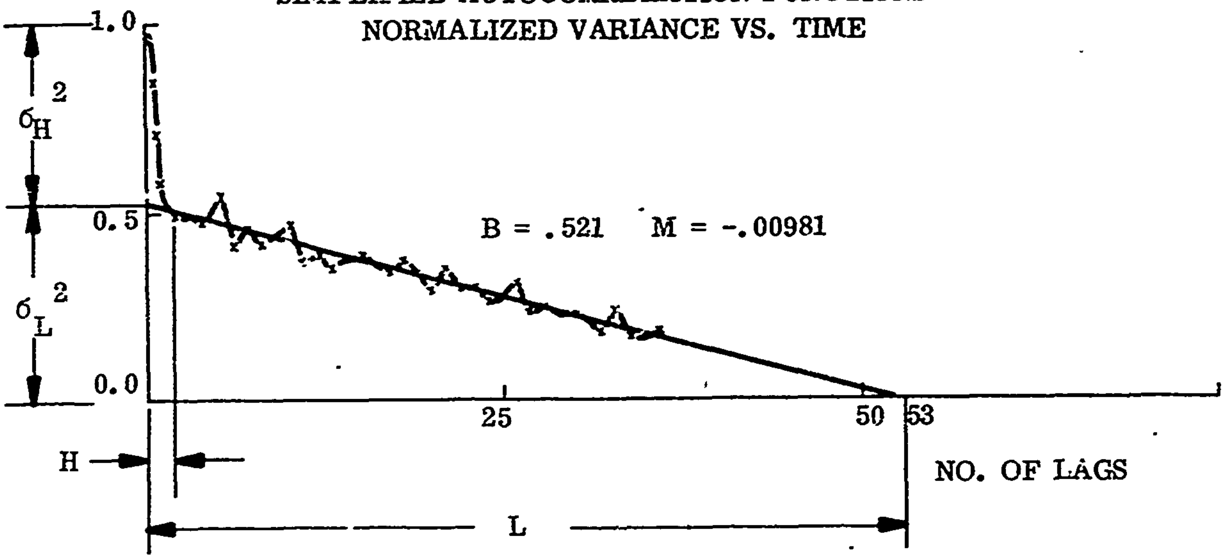
σ_T^2 = 3.68 = VARIANCE σ_T = 1.92

L = 39.2 SEC $\overline{S/N}$ = +3.25

H = 3.75 SEC

RUN 3 LEG 1 SIGNAL-TO-NOISE
DATA BASED ON 175 FRAMES
(ENTIRE RUN) OR 435 SECONDS (10% LAG)

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 52% = 4.16

σ_H^2 = 48% = 3.85

σ_T^2 = 8.01 = VARIANCE

L = 132 SEC

H = 5 SEC

σ_L = 2.04

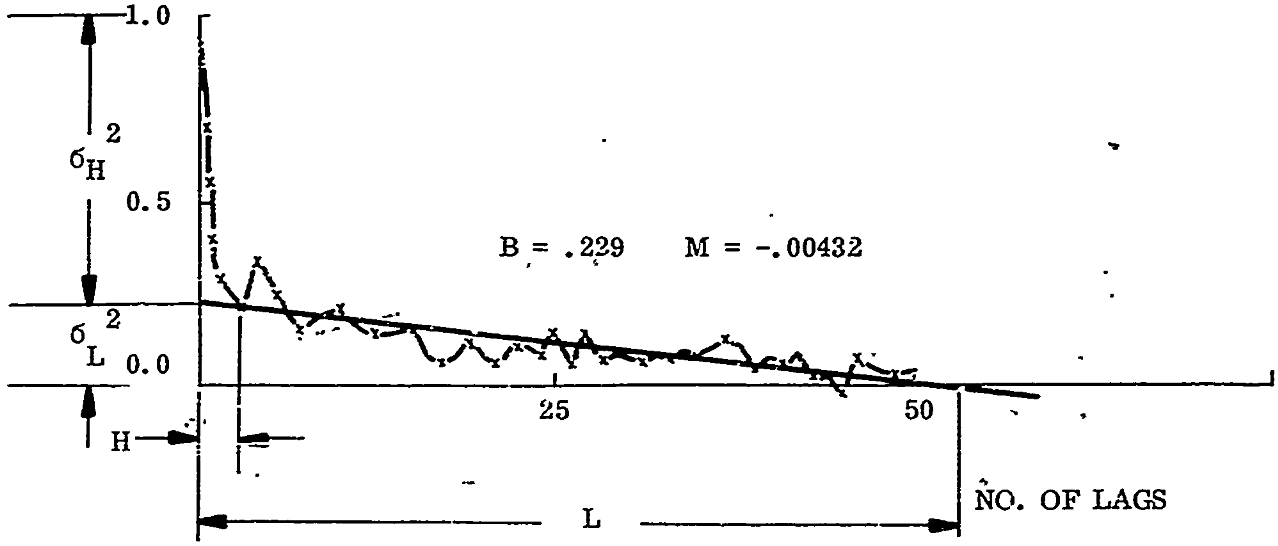
σ_H = 1.96

σ_T = 2.83

$\overline{S/N}$ = +2.91

RUN 3 LEG 2 SIGNAL-TO-NOISE
10,000 YARDS
DATA BASED ON 364 FRAMES
(ENTIRE RUN) - (910 SECONDS) 10% LAG

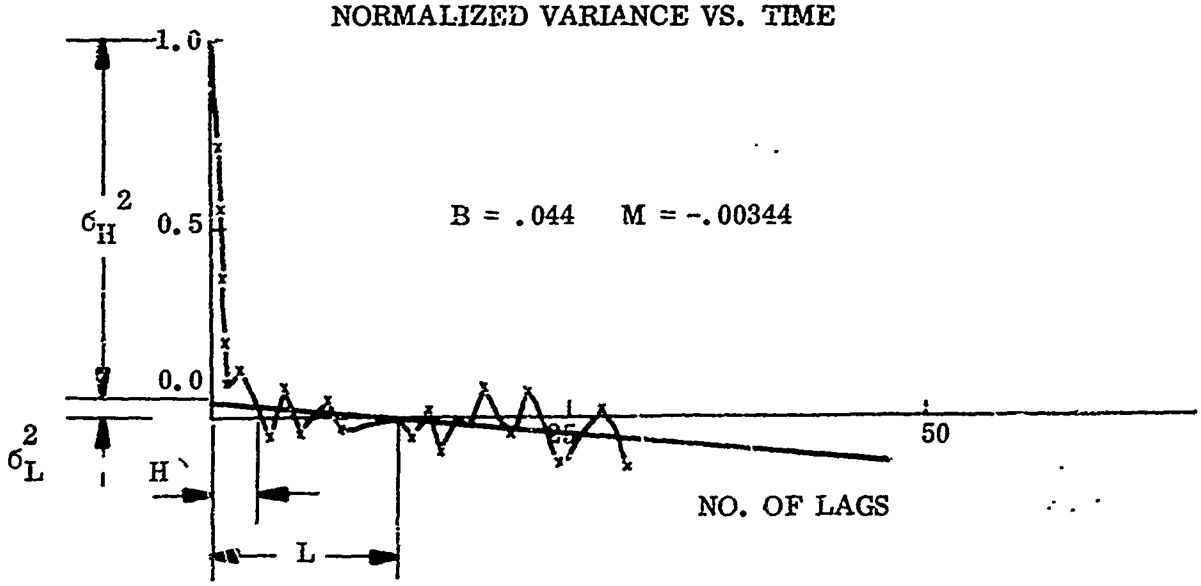
SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2	= 23% = 1.24	σ_L	= 1.11
σ_H^2	= 77% = 4.15	σ_H	= 2.04
σ_T^2	= 5.39 = VARIANCE	σ_T	= 2.32
L	= 132 SEC	S/N	= -4.67
H	= 7.5 SEC		

RUN 3 LEG 3 SIGNAL-TO-NOISE
20,000 YARDS
DATA BASED ON 508 FRAMES
(ENTIRE RUN) - 1270 SECONDS, 10% LAG

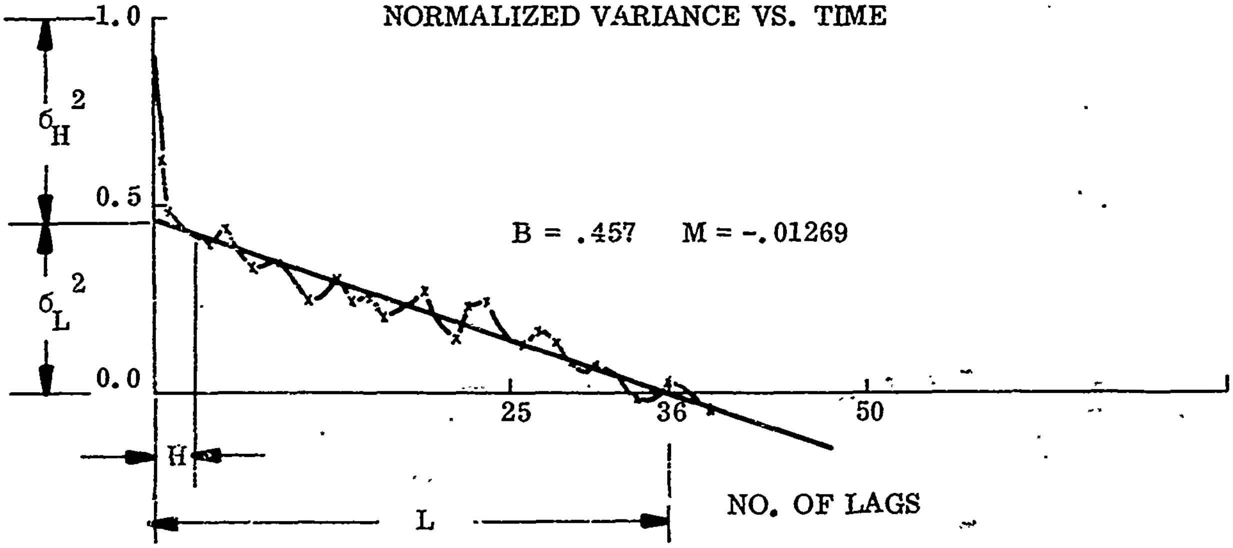
SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



$\sigma_L^2 = 4\% = .137$	$\sigma_L = .370$
$\sigma_H^2 = 96\% = 2.97$	$\sigma_H = 1.72$
$\sigma_T^2 = 3.11$ = VARIANCE	$\sigma_T = 1.76$
L = 32.5 SEC	$\overline{S/N} = -4.56$
H = 7.5 SEC	

RUN 3 LEG 4 SIGNAL-TO-NOISE
40,000 YARDS
DATA BASED ON 296 FRAMES
(043 TO 339) - 740 SECONDS, 10% LAG

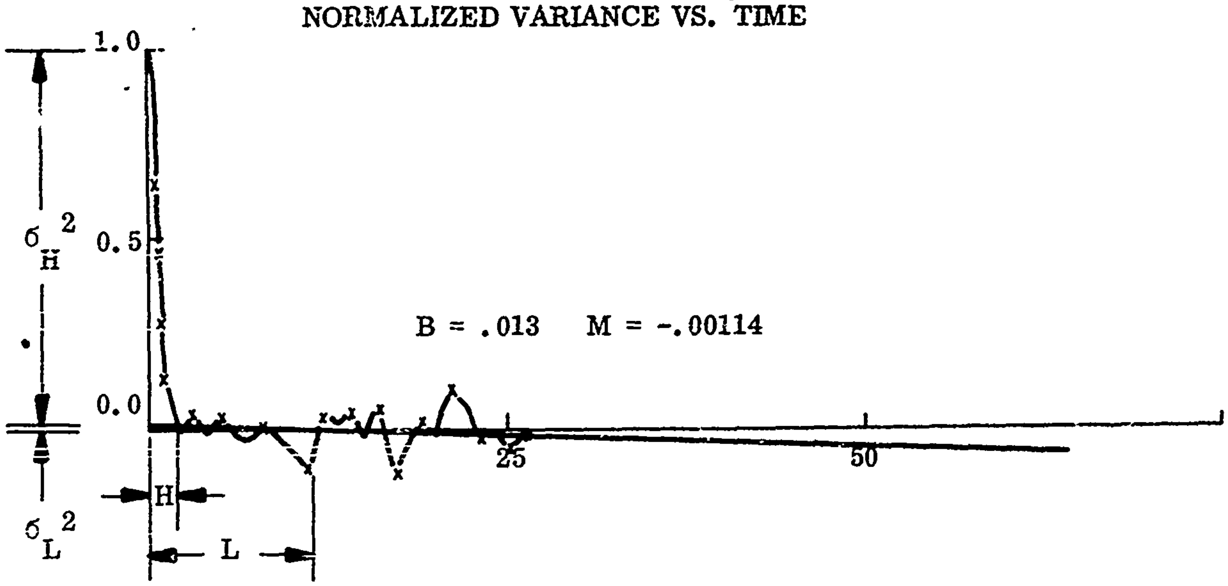
SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 46% = 3.40	σ_L = 1.84
σ_H^2 = 54% = 4.05	σ_H = 2.01
σ_T^2 = 7.45 = VARIANCE	σ_T = 2.38
L = 90 SEC	$\overline{S/N}$ = -2.58
H = 7.5 SEC	

RUN 3 LEG 4 SIGNAL-TO-NOISE
40,000 YARDS
DATA BASED ON 393 FRAMES
(ENTIRE RUN) - 980 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 1% = .04

σ_H^2 = 99% = 3.90

σ_T^2 = 3.94 = VARIANCE

L = 28.5 SEC

H = 5 SEC

σ_L = 0.20

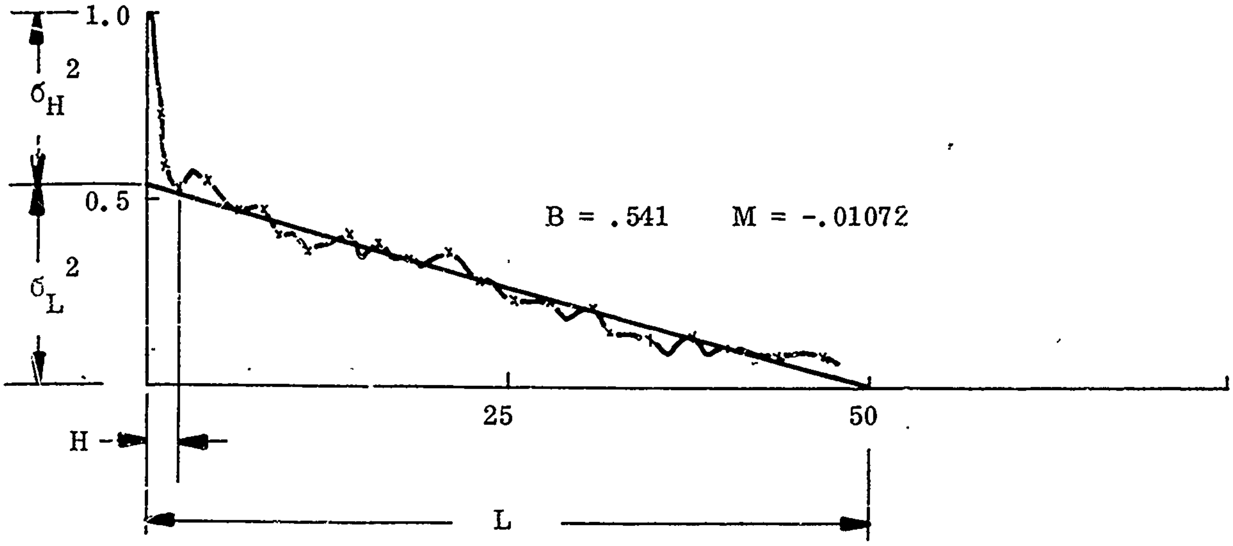
σ_H = 1.97

σ_T = 1.98

$\overline{S/N}$ = -5.75

RUN 3 LEG 5 SIGNAL-TO-NOISE
60,000 YARDS
DATA BASED ON 266 FRAMES
(035-300) 665 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 54% = 5.55 $\qquad$ σ_L = 2.35

σ_H^2 = 46% = 4.71 $\qquad$ σ_H = 2.17

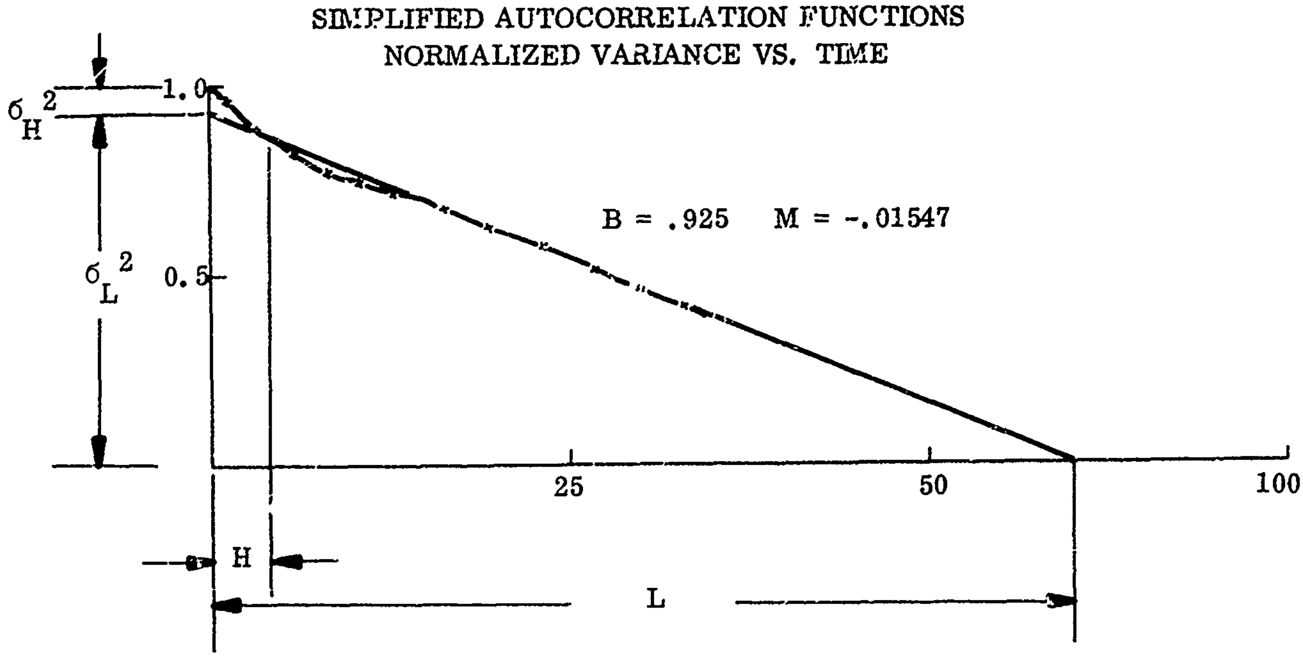
σ_T^2 = 10.26 = VARIANCE $\qquad$ σ_T = 3.20

L = 125 SEC

H - 3 SEC

RUN 3 LEG 5 SIGNAL-TO-NOISE
60,000 YARDS
DATA BASED ON 484 FRAMES
(ENTIRE RUN) - 1210 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 92% = .00394 $\qquad$ σ_L = .0628

σ_H^2 = 8% = .000343 $\qquad$ σ_H = .0185

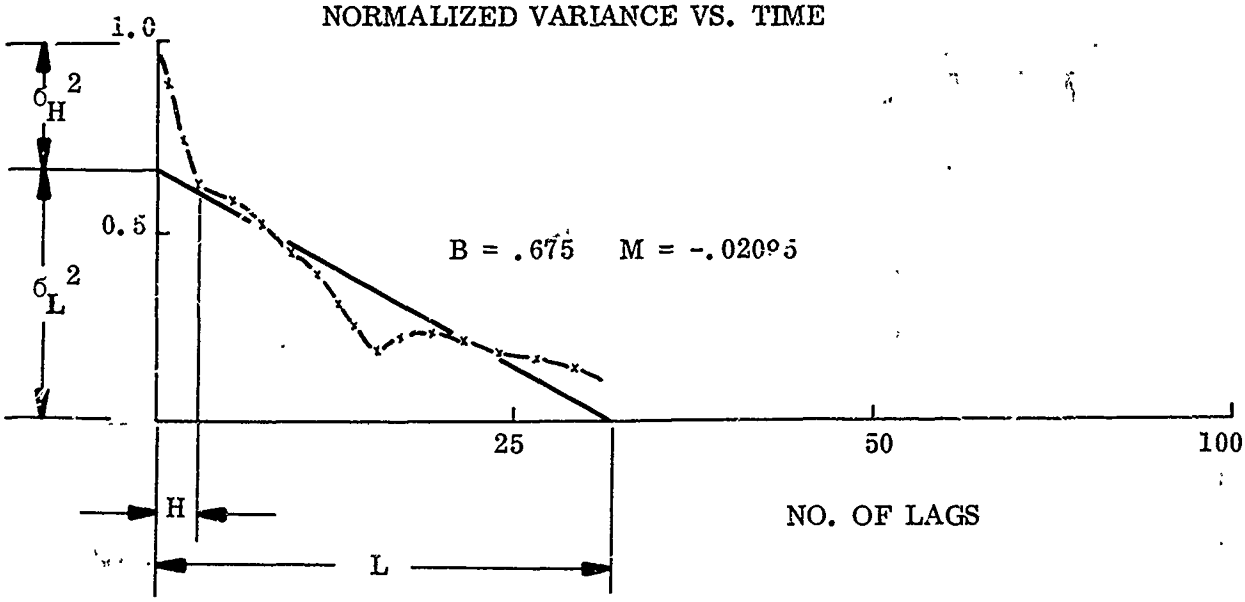
σ_T^2 = .00429 = VARIANCE $\qquad$ σ_T = .0654

L = 150 SEC

H = 10 SEC

RUN 2 LEG 4 (BEARING)
40,000 YARDS
DATA BASED ON 346 FRAMES
(114-460) - 865 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 67% = .01740 σ_L = .132

σ_H^2 = 33% = .00855 σ_H = .0924

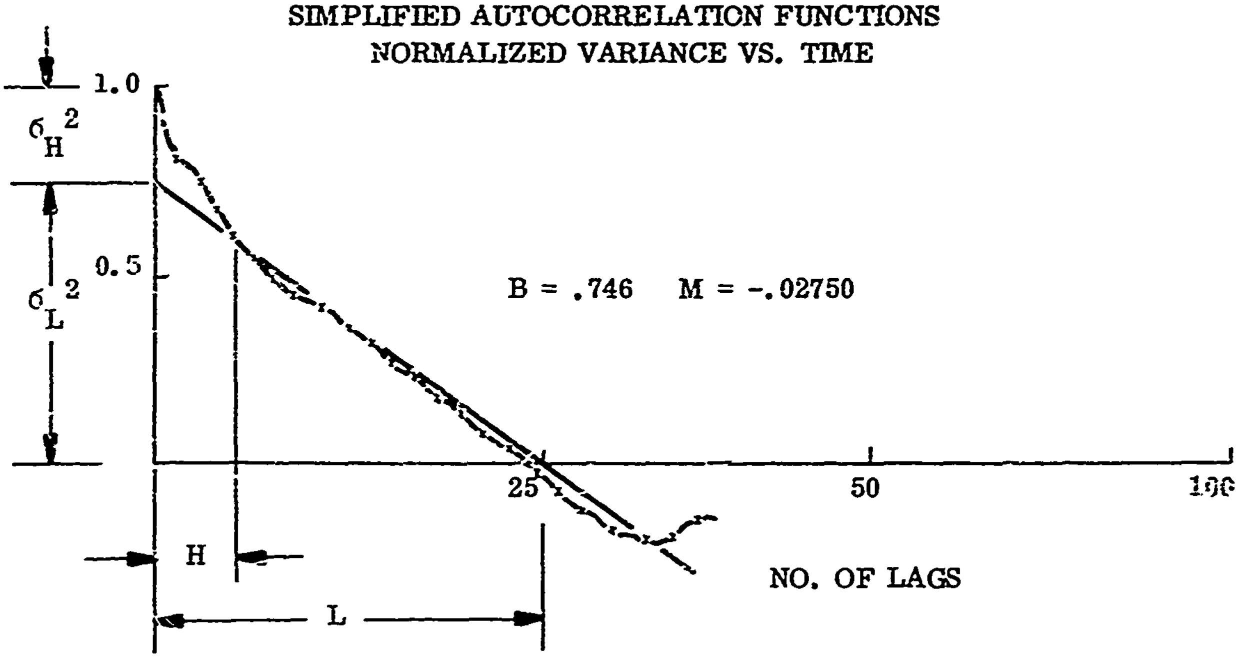
σ_T^2 = .0259 = VARIANCE σ_T = .161

L = 80 SEC

H = 7.5 SEC

RUN 3 LEG 4 (D/E)
40,000 YARDS
DATA BASED ON 317 FRAMES
(076-393) 792 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 75% = .00281 σ_L = .0530

σ_H^2 = 25% = .000938 σ_H = .00969

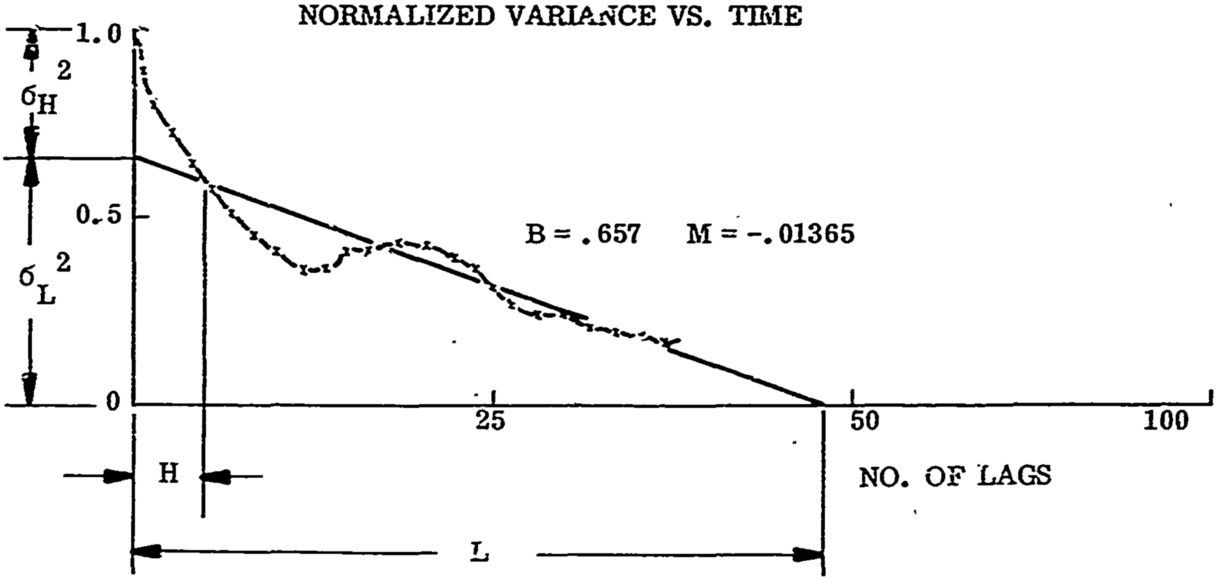
σ_T^2 = .00375 = VARIANCE σ_T = .0612

L = 67.5 SEC

H = 13.7 SEC

RUN 3 LEG 4 (BEARING)
40,000 YARDS
DATA BASED ON 393 FRAMES
(ENTIRE RUN) - 980 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 66% = .00629 $\qquad$ σ_L = .0792

σ_H^2 = 34% = .00323 $\qquad$ σ_H = .0568

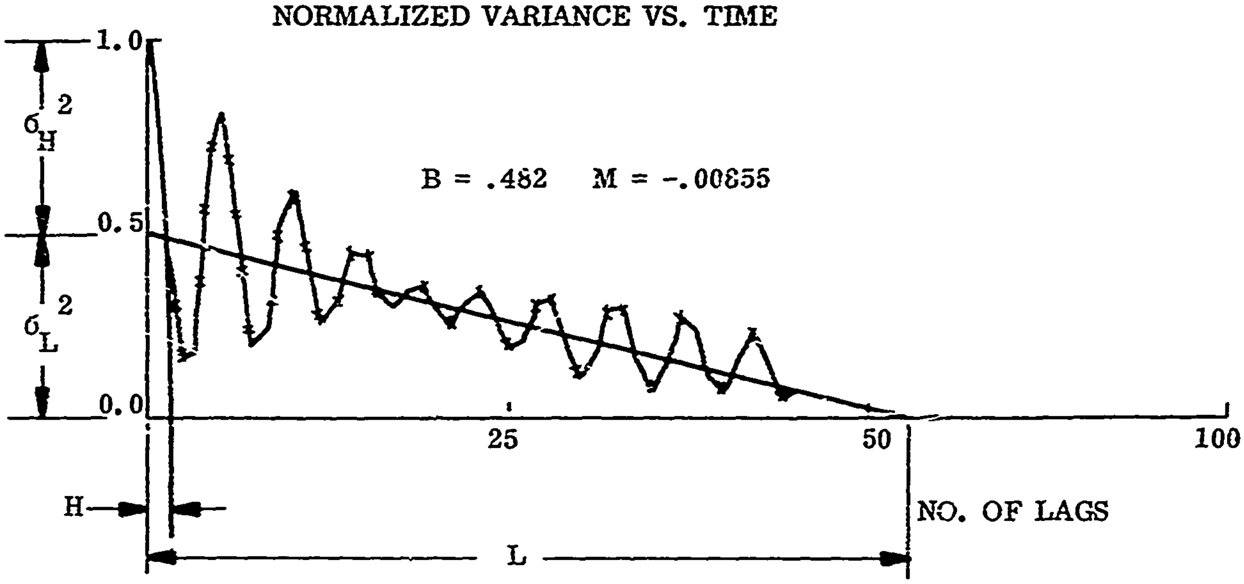
σ_T^2 = .00952 = VARIANCE $\qquad$ σ_T = .0975

L = 120 SEC

H = 12.5 SEC

RUN 3 LEG 5 (D/E)
60,000 YARDS
DATA BASED ON 386 FRAMES
(0-386) - 965 SECONDS, 10% LAG

SIMPLIFIED AUTOCORRELATION FUNCTIONS
NORMALIZED VARIANCE VS. TIME



σ_L^2 = 48% = .00786

σ_H^2 = 52% = .00852

σ_T^2 = .0164 = VARIANCE

L = 132 SEC

H = 3.75 SEC

σ_L = .0886

σ_H = .0923

σ_T = .128

RUN 3 LEG 5 (SPEED)
60,000 YARDS
DATA BASED ON 454 FRAMES
(ENTIRE RUN) - 1135 SECONDS, 10% LAG

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